

**DRAFT
INITIAL STUDY
MITIGATED NEGATIVE DECLARATION**

**BIG BASIN REDWOODS STATE PARK
WATER SYSTEM IMPROVEMENTS PROJECT**



May 2006



**State of California
DEPARTMENT OF PARKS AND RECREATION
Acquisition and Development Division
Northern Service Center**

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MITIGATED NEGATIVE DECLARATION

PROJECT: **WATER SYSTEM IMPROVEMENTS PROJECT**

LEAD AGENCY: California Department of Parks and Recreation

AVAILABILITY OF DOCUMENTS: The Initial Study for this Mitigated Negative Declaration is available for review at:

- Northern Service Center
California Department of Parks & Recreation
One Capitol Mall - Suite 410
Sacramento, CA 95814
- Santa Cruz District Headquarters
California Department of Parks & Recreation
303 Big Tree Park Road
Felton, CA 95081
- Big Basin Redwoods State Park Headquarters
21600 Big Basin Way
Boulder Creek, CA 95006-9064
- Central Branch Library
Santa Cruz Public Library
224 Church Street
Santa Cruz, CA 95060
(831) 420-5700
- Boulder Creek Library
Santa Cruz Public Library
13390 West Park
Boulder Creek, CA 95006
(831) 420-5319
- California Department of Parks and Recreation website
www.parks.ca.gov/default.asp?page_id=982

PROJECT DESCRIPTION:

Make improvements to the water treatment and storage systems at Big Basin Redwoods State Park to protect public health and increase the reliability and quality of the water supply.

- Replace existing Panoramic water storage tank with a steel storage tank with similar capacity. The Panoramic Tank will remain undisturbed in its current condition due to historical significance and be used for water storage for fire emergencies. Install replacement water supply and distribution lines.
- Replace selected pressure regulators, valves, and valve boxes.
- Add fences and locked gates per current federal Department of Homeland

Security and California Department of Health Services public safety requirements for water supply facilities.

- Upgrade existing water supply monitoring and alert system including upgraded data connection between the water treatment plant (WTP) and storage facilities, new telemetry monitoring equipment at the WTP, and a data connection between the water plant and maintenance area.
- A new fire suppression line and two new fire hydrants will be installed to service the lower Sky Meadow residence area.
- Replace existing water lines within the upper residence area from the main valve box.
- Replace corroded parts at the WTP and coat primary treatment tank to prevent further corrosion. Upgrade chemical feeding systems and install automatic valves and additional micro-filtration equipment to comply with current California Department of Health Services water quality requirements.
- Rehabilitate WTP enclosure, plumbing, and electrical systems by replacing corroded structural members, providing adequate ventilation, upgrading electrical supply panel, and replace conductors from the pump house distribution panel to the WTP.

A copy of the Initial Study is attached. Questions or comments regarding this Initial Study/Mitigated Negative Declaration should be submitted in writing to:

Gail Sevens – Environmental Coordinator
California Department of Parks & Recreation
Northern Service Center
One Capitol Mall - Suite 410
Sacramento, CA 95814

Pursuant to Section 21082.1 of the California Environmental Quality Act, the California Department of Parks and Recreation (DPR) has independently reviewed and analyzed the Initial Study and Negative Declaration for the proposed project and finds that these documents reflect the independent judgment of DPR. DPR, as lead agency, also confirms that the project mitigation measures detailed in these documents are feasible and will be implemented as stated in the Negative Declaration.

Gail Sevens
Environmental Coordinator

Date

Original Signature on File
Kathleen Amann
Chief Northern/Southern Service Centers

Date

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION AND REGULATORY GUIDANCE

The Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by the California Department of Parks and Recreation (DPR) to evaluate the potential environmental effects of the proposed Water System Improvements Project at Big Basin Redwoods State Park, Santa Cruz County, California. This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code §21000 *et seq.*, and the State CEQA Guidelines, California Code of Regulations (CCR) §15000 *et seq.*

An Initial Study is conducted by a lead agency to determine if a project may have a significant effect on the environment [CEQA Guidelines §15063(a)]. If there is substantial evidence that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) must be prepared, in accordance with CEQA Guidelines §15064(a). However, if the lead agency determines that revisions in the project plans or proposals made by or agreed to by the applicant mitigate the potentially significant effects to a less-than-significant level, a Mitigated Negative Declaration may be prepared instead of an EIR [CEQA Guidelines §15070(b)]. The lead agency prepares a written statement describing the reasons a proposed project would not have a significant effect on the environment and, therefore, why an EIR need not be prepared. This IS/MND conforms to the content requirements under CEQA Guidelines §15071.

1.2 LEAD AGENCY

The lead agency is the public agency with primary approval authority over the proposed project. In accordance with CEQA Guidelines §15051(b)(1), "the lead agency will normally be an agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." The lead agency for the proposed project is DPR. The contact person for the lead agency is:

Gary Leach, Project Manager
California Department of Parks and Recreation
Northern Service Center
One Capitol Mall, Suite 500
Sacramento, California 95814

Questions or comments regarding this Initial Study/Mitigated Negative Declaration should be submitted to:

Gail Sevrens – Environmental Coordinator
California Department of Parks and Recreation
Northern Service Center
One Capitol Mall, Suite 410
Sacramento, California 95814

1.3 PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this document is to evaluate the potential environmental effects of the proposed Water System Improvements Project at Big Basin Redwoods State Park. Mitigation measures have also been incorporated into the project to eliminate any potentially significant impacts or reduce them to a less-than-significant level.

This document is organized as follows:

- Chapter 1 - Introduction.
This chapter provides an introduction to the project and describes the purpose and organization of this document.
- Chapter 2 - Project Description.
This chapter describes the reasons for the project, scope of the project, and project objectives.
- Chapter 3 - Environmental Setting, Impacts, and Mitigation Measures.
This chapter identifies the significance of potential environmental impacts, explains the environmental setting for each environmental issue, and evaluates the potential impacts identified in the CEQA Environmental (Initial Study) Checklist. Mitigation measures are incorporated, where appropriate, to reduce potentially significant impacts to a less-than-significant level.
- Chapter 4 - Mandatory Findings of Significance
This chapter identifies and summarizes the overall significance of any potential impacts to natural and cultural resources, cumulative impacts, and impact to humans, as identified in the Initial Study.
- Chapter 5 - Summary of Mitigation Measures.
This chapter summarizes the mitigation measures incorporated into the project as a result of the Initial Study.
- Chapter 6 - References.
This chapter identifies the references and sources used in the preparation of this IS/MND. It also provides a list of those involved in the preparation of this document.
- Chapter 7 - Report Preparation
This chapter provides a list of those involved in the preparation of this document.

1.4 SUMMARY OF FINDINGS

Chapter 3 of this document contains the Environmental (Initial Study) Checklist that identifies the potential environmental impacts (by environmental issue) and a brief discussion of each impact resulting from implementation of the proposed project.

Based on the IS and supporting environmental analysis provided in this document, the proposed Water System Improvements Project would result in less-than-significant

impacts for the following issues: aesthetics, agricultural resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/traffic, and utilities and service systems.

In accordance with §15064(f) of the CEQA Guidelines, a MND shall be prepared if the proposed project will not have a significant effect on the environment after the inclusion of mitigation measures in the project. Based on the available project information and the environmental analysis presented in this document, there is no substantial evidence that, after the incorporation of mitigation measures, the proposed project would have a significant effect on the environment. It is proposed that a Mitigated Negative Declaration be adopted in accordance with the CEQA Guidelines.

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CHAPTER 2

PROJECT DESCRIPTION

2.1 INTRODUCTION

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by the California Department of Parks and Recreation (DPR) to evaluate the potential environmental effects of the proposed Water System Improvements Project at Big Basin Redwoods State Park, located in the County of Santa Cruz, California. The proposed project would improve the existing water treatment and storage system in the Park, providing upgrades for fire suppression and public health and security.

2.2 PROJECT LOCATION

The Water System Improvements project site is located 25 miles northeast of Santa Cruz, near the small town of Boulder Creek in Big Basin Redwoods State Park. The Park is in two county jurisdictions: the southern portion of the Park is in Santa Cruz County and a small northern portion is in San Mateo County. The proposed project is located entirely within Santa Cruz County. Project work will range from the Park Headquarters area in the southeast to the main water tank in the north, to the upper residence area in the west. See Appendix A for maps of the site location and vicinity.

2.3 BACKGROUND AND NEED FOR THE PROJECT

The Big Basin Redwoods State Park potable water system consists of a water supply reservoir, water treatment plant, distribution system, and storage tanks. The water treatment plant is reaching the end of its useful life and its enclosure is severely deteriorated. The pivotal water storage element, the Panoramic Tank, has significant leaks and structural roof problems. The water treatment plant operation and maintenance costs will continue to increase and the reliability will decrease unless improvements are made. The distribution system is aging and routine maintenance cannot keep pace with the system's deterioration. A failure of the any one of the water supply components would likely result in Park closures and revenue loss from visitors turned away and could endanger public health. Current annual maintenance support is insufficient to correct the system's defects.

2.4 PROJECT OBJECTIVES

- Make improvements to the water treatment and storage systems at Big Basin Redwoods State Park to protect public health and increase the reliability and quality of the water supply.
- Meet current federal Department of Homeland Security and California Department of Health Services public safety requirements for water supply facilities.
- Improve operating efficiency and water treatment quality to comply with current California Department of Health Services water quality requirements.

2.5 PROJECT DESCRIPTION

Make improvements to the water treatment and storage systems at Big Basin Redwoods State Park to protect public health and increase the reliability and quality of the water supply.

The existing 100,000-gallon semi-underground Panoramic water storage tank will be replaced with a prefabricated bolted steel storage tank similar in storage capacity (approximately 33 ft. diameter x 16 ft. height). The Panoramic Tank will remain undisturbed in its current condition due to historical significance of its unique design as constructed in 1936-37 by the Civilian Conservation Corps. Future use of the Panoramic Tank in another capacity (water storage for fire emergencies) will be facilitated by the DPR Santa Cruz District. This use of the Panoramic Tank would aid in the process of slowing down decay. The replacement steel tank will be constructed in an open space area approximately 20' feet northeast of the existing Panoramic Tank location. This location is in a remote area out of view of the general public. The replacement water supply and distribution lines from the new tank will require approximately 200' lineal feet of trenching to complete the points of connection to the existing supply/distribution lines located within 100' lineal ft. of the Panoramic Tank.

The existing Panoramic Tank dirt access road from the main Park road (State Route 236) will serve as the construction access road to this area (to include a truck crane, flatbed trucks, and a grader). Minor trimming of tree limbs and brush located adjacent to either side of the access road will be required to transport construction equipment and material deliveries to the site. A few small trees (<12" diameter at breast height) will also need to be removed.

Critical pressure regulators and valves will be replaced at three valve box locations. The pressure regulators and valves are critical to the safe operation and protection of the distribution system. Select components throughout the system will be replaced. Some of the valve boxes may need to be excavated, and if so, excavation will be completed by hand.

Water infrastructure security will be improved by rehabilitating existing features and adding new features, such as fences and locked gates per current federal Department of Homeland Security and California Department of Health Services public safety requirements for water supply facilities. The water storage tanks (new steel storage tank adjacent to the Panoramic Tank, the upper tanks, the Sky Meadow tank, and the main water tank at the water treatment plant) will require security wire fabric type fencing with locked gates to limit access to authorized personnel only.

The existing water supply monitoring and alert system will be upgraded to provide maintenance staff the data necessary to efficiently operate the water system. The upgrades will include an upgraded data connection between the water plant and storage facilities, new telemetry monitoring equipment at the water plant, and a data connection between the water plant and maintenance area.

A new fire suppression line and two new fire hydrants will be installed to service the lower Sky Meadow residence area supplied from the upper four storage tanks; currently

there is no fire protection for the staff residences. The new line will provide a limited fire suppression capacity that is needed to protect the lower residence area. The proposed replacement line will require approximately 1,100 lineal feet of trenching from the Upper storage tanks to the Sky Meadow storage tanks and approximately an additional 1,200 lineal feet of trenching from the Sky Meadow tank to the lower residence area. The lower residence area will require approximately 900 lineal feet of trenching throughout the area to complete the installation of the proposed fire suppression lines and hydrants. All ground-disturbing work within the lower residential area will require continuous monitoring by a certified DPR cultural resource staff member to ensure any possible impacts to potential cultural resources are minimized.

The domestic water distribution system located within the upper residence area requires replacement of the existing water lines from the main valve box located within the residence area. The replacement lines will require approximately 1,200 lineal feet of trenching to complete installation of lines and final connections to each of the four residences.

The existing water treatment plant (WTP) will be rehabilitated by replacing worn-out or corroded parts. The existing primary treatment tank will be coated to prevent further corrosion. Chemical feeding systems will be upgraded and automatic valves and additional micro-filtration equipment will be installed to improve the WTP operating efficiency and water treatment quality to comply with current California Department of Health Services water quality requirements.

The treatment plant support facilities, such as the enclosure and plumbing and electrical systems, will be rehabilitated or upgraded. The improvements include replacing corroded structural members, providing adequate ventilation, upgraded electrical supply panel, and replacement conductors from the existing pumphouse distribution panel to the WTP utilizing existing underground conduits.

Minimal ground disturbance is anticipated for the WTP area and will be contained within the existing footprint of the facility.

2.6 PROJECT CONSTRUCTION

Project construction is anticipated to begin approximately November 2008.

2.7 VISITATION TO BIG BASIN REDWOODS STATE PARK

Year	Day Use	Overnight Camping	Total Attendance
2002	761,271	130,217	891,488
2003	758,442	132,300	890,742
2004	763,941	120,336	884,277
2005	468,935	95,457	564,392

Source: California Department of Parks and Recreation Attendance Database, 2006

The proposed project will rehabilitate existing systems. No increase in Park visitation is anticipated as a result of the proposed project.

2.8 CONSISTENCY WITH LOCAL PLANS AND POLICIES

The proposed project is consistent with the Santa Cruz County General Plan. Please see Chapter 3, Section IX, Land Use and Planning, for further details.

2.9 DISCRETIONARY APPROVALS

DPR has approval authority for the proposed project. The project would also require approval of the State Fire Marshal, and approval by the DPR Accessibility Section, on authority of the Department of General Services Accessibility Section. The project site is located outside the Coastal Zone and therefore not subject to coastal development permitting.

DPR operates the water system under a permit issued by the California Department of Health Services (DHS). Any significant changes in the system or operations require notifying DHS. The Department will work actively with DHS during the planning and design process to provide a smooth transition for the new facilities.

2.10 RELATED PROJECTS

DPR often has other maintenance programs and rehabilitation projects planned for a Park unit. Projects currently planned or underway include various improvements to the Park's wastewater treatment and collection system (Notice of Exemption filed 7/29/05, State Clearinghouse #2005088037), a rehabilitation of the Sempervirens Dam water intake pipe (Notice of Exemption filed 7/26/04, SCH #2004078345), and repair of a slip-out on the service road to the water treatment plant. Two projects are planned for the Rancho del Oso portion of the Park, located on the Pacific coast along State Route 1 more than five miles from this proposed project: one to upgrade a separate water supply system (Notice of Exemption filed 7/29/05, SCH #2005078408), and one to enhance the Waddell Estuary (Notice of Determination filed 8/26/05, SCH #2001122015).

CHAPTER 3

ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION

1. Project Title: Water System Improvements, Big Basin Redwoods SP
2. Lead Agency Name & Address: California Department of Parks and Recreation
3. Contact Person & Phone Number: Gary Leach, Project Manager, (916) 445-8691
4. Project Location: Big Basin Redwoods State Park, Santa Cruz County
5. Project Sponsor Name & Address: California Department of Parks and Recreation
Acquisition and Development Division
Northern Service Center
One Capital Mall - Suite 500
Sacramento, California 95814
6. General Plan Designation: Parks and Recreation (Santa Cruz County General Plan)
7. Zoning: Special Use (Santa Cruz County Zoning Ordinance)
8. Description of Project:
Make improvements to the water treatment and storage systems at Big Basin Redwoods State Park to protect public health and increase the reliability and quality of the water supply.
 - Replace existing Panoramic water storage tank with a steel storage tank with similar capacity. The Panoramic Tank will remain undisturbed in its current condition due to historical significance and be used for water storage for fire emergencies. Install replacement water supply and distribution lines.
 - Replace selected pressure regulators, valves, and valve boxes.
 - Add fences and locked gates per current federal Department of Homeland Security and California Department of Health Services public safety requirements for water supply facilities.
 - Upgrade existing water supply monitoring and alert system including upgraded data connection between the water treatment plant (WTP) and storage facilities, new telemetry monitoring equipment at the WTP, and a data connection between the water plant and maintenance area.
 - A new fire suppression line and two new fire hydrants will be installed to service the lower Sky Meadow residence area.
 - Replace existing water lines within the upper residence area from the main valve box.
 - Replace corroded parts at the WTP and coat primary treatment tank to prevent further corrosion. Upgrade chemical feeding systems and install automatic valves and additional micro-filtration equipment to comply with current California Department of Health Services water quality requirements.
 - Rehabilitate WTP enclosure, plumbing, and electrical systems by replacing corroded structural members, providing adequate ventilation, upgrading electrical supply panel, and replace conductors from the pump house distribution panel to the WTP.
9. Surrounding Land Uses & Setting: Refer to Chapter 3 of this document (Section IX, Land Use Planning)
10. Approval Required from Other Public Agencies: California Department of Health Services, State Fire Marshall

1. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact", as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agricultural Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | <input checked="" type="checkbox"/> None |

DETERMINATION

On the basis of this initial evaluation:

I find that the proposed project **COULD NOT** have a significant effect on the environment and a **NEGATIVE DECLARATION** will be prepared. ☐

I find that, although the original scope of the proposed project **COULD** have had a significant effect on the environment, there **WILL NOT** be a significant effect because revisions/mitigations to the project have been made by or agreed to by the applicant. A **MITIGATED NEGATIVE DECLARATION** will be prepared. ☒

I find that the proposed project **MAY** have a significant effect on the environment and an **ENVIRONMENTAL IMPACT REPORT** or its functional equivalent will be prepared. ☐

I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated impact" on the environment. However, at least one impact has been adequately analyzed in an earlier document, pursuant to applicable legal standards, and has been addressed by mitigation measures based on the earlier analysis, as described in the report's attachments. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the impacts not sufficiently addressed in previous documents. ☐

I find that, although the proposed project could have had a significant effect on the environment, because all potentially significant effects have been adequately analyzed in an earlier EIR or Negative Declaration, pursuant to applicable standards, and have been avoided or mitigated, pursuant to an earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, all impacts have been avoided or mitigated to a less-than-significant level and no further action is required. ☐

Gail Sevrens
Environmental Coordinator

Date

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers, except "No Impact", that are adequately supported by the information sources cited. A "No Impact" answer is adequately supported if the referenced information sources show that the impact does not apply to the project being evaluated (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on general or project-specific factors (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must consider the whole of the project-related effects, both direct and indirect, including off-site, cumulative, construction, and operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether that impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate when there is sufficient evidence that a substantial or potentially substantial adverse change may occur in any of the physical conditions within the area affected by the project that cannot be mitigated below a level of significance. If there are one or more "Potentially Significant Impact" entries, an Environmental Impact Report (EIR) is required.
4. A "Mitigated Negative Declaration" (Negative Declaration: Less Than Significant with Mitigation Incorporated) applies where the incorporation of mitigation measures, prior to declaration of project approval, has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact with Mitigation." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level.
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR (including a General Plan) or Negative Declaration [CCR, Guidelines for the Implementation of CEQA, § 15063(c)(3)(D)]. References to an earlier analysis should:
 - a) Identify the earlier analysis and state where it is available for review.
 - b) Indicate which effects from the environmental checklist were adequately analyzed in the earlier document, pursuant to applicable legal standards, and whether these effects were adequately addressed by mitigation measures included in that analysis.
 - c) Describe the mitigation measures in this document that were incorporated or refined from the earlier document and indicate to what extent they address site-specific conditions for this project.
6. Lead agencies are encouraged to incorporate references to information sources for potential impacts into the checklist or appendix (e.g., general plans, zoning ordinances, biological assessments). Reference to a previously prepared or outside document should include an indication of the page or pages where the statement is substantiated.
7. A source list should be appended to this document. Sources used or individuals contacted should be listed in the source list and cited in the discussion.
8. Explanation(s) of each issue should identify:
 - a) the criteria or threshold, if any, used to evaluate the significance of the impact addressed by each question **and**
 - b) the mitigation measures, if any, prescribed to reduce the impact below the level of significance.

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ENVIRONMENTAL ISSUES

I. AESTHETICS.

ENVIRONMENTAL SETTING

The aesthetic resources of Big Basin Redwoods SP are associated with views inside the Park, in particular of majestic old growth redwood forest, as well as vistas from roads looking toward the Park landscape (DPR 2006b). As indicated in the unpublished draft General Plan for the Park:

The visual quality of this area is very important not only for visitors to the park, but also on a local, regional and State level, as indicated in local and regional land use plans (such as the Santa Cruz County General Plan and Local Coastal Program), and the state scenic highway designation of State Route 1 and Highway 236. Views from the major roads to, near, and within the park are where many people experience this landscape. Consequently, the enhancement, preservation, and protection of scenic quality is an important public issue in this region. (DPR 2006b)

State Route 236 (SR 236), which winds through the eastern portion of the Park, has been determined by Caltrans as eligible for the California Scenic Highway Program (Caltrans 2006). The Santa Cruz County General Plan states "public vistas from these roads shall be afforded the highest level of protection" (County of Santa Cruz 1994, revised by Res. 473-98, 5.10.10).

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The majority of the project will either occur in remote or nonpublic areas of the Park, or will take place underground. No viewsheds will be blocked. As with any construction project, there would be some temporary decrease in the visual appeal of the area immediately affected by the work being performed. These temporary impacts could also include construction vehicle access to areas of work via SR 236 (especially to access the Panoramic Tank site). However, the duration and geographic scope of the work would be limited. Less than significant impact.
- b) State Route 236 has been determined by Caltrans as eligible for the California Scenic Highway Program, although it has not been officially designated. However, no project work will take place within the highway's viewshed. Temporary impacts could include construction vehicle access to areas of work via SR 236 (especially to access the Panoramic Tank site). Less than significant impact.

- c) The visual character of the various locations of the project site will not change, with two minor exceptions: 1) to comply with current Department of Homeland Security and California Department of Health Services public safety requirements for water supply facilities, security fencing and locked gates will be installed at water storage tanks located throughout the distribution system; and 2) a new water storage tank will be installed adjacent to the existing Panoramic Tank. However, these changes are minor and in keeping with the existing visual character of public infrastructure facilities at each of the sites. Further, these locations are in remote areas of the Park that are not often seen by visitors. Less than significant impact.
- d) There is no lighting component to the project. No impact.

II. AGRICULTURAL RESOURCES.

ENVIRONMENTAL SETTING

Agriculture has taken place in the past within the boundaries of present-day Big Basin Redwoods SP (DPR 2006b, p. 15). However, agricultural uses have been more predominant along the coast, not in the mountainous areas where the project will take place. No agriculture takes place at the project site. The County of Santa Cruz General Plan does not designate any areas in proximity to the project site as “agricultural-viable,” “agricultural-viable w/limitations,” or “agricultural preserve,” and the land is not zoned for agriculture (County of Santa Cruz Zoning Ordinance).

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT*:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

* In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997), prepared by the California Department of Conservation as an optional model for use in assessing impacts on agricultural and farmland.

DISCUSSION

- a) The project will not take place on farmland nor will it convert any farmland. No impact.
- b) The project site is not zoned for agriculture, nor is it subject to a Williamson Act contract. No impact.
- c) The project will not make any changes that could result in conversion of farmland. No impact.

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III. AIR QUALITY.

ENVIRONMENTAL SETTING

Air Quality Regulatory Context

Regulation of air quality is achieved through implementation of national and state ambient air quality (concentration) standards (AAQS) and enforcement of emissions limits for individual sources of air pollutants. The Federal Clean Air Act required the U.S. Environmental Protection Agency (EPA) to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulate matter (PM₁₀), and lead. These pollutants are called “criteria” air pollutants because the corresponding ambient standards satisfy criteria specified under the Clean Air Act. The State of California has established its own ambient air quality standards (SAAQS), which are generally more stringent than their national counterparts. The Federal Clean Air Act required U.S. EPA to designate air basins, or portions thereof, as either “attainment” or “non-attainment” for each criteria air pollutant, based on whether or not the national standards have been achieved. The California Clean Air Act, patterned after the Federal Clean Air Act, also required that areas be designated as “attainment” or “non-attainment” but with respect to the state standards rather than the national standards.

The project site is completely within Santa Cruz County, which falls within the North Central Coast Air Basin (NCCAB) and is regulated by the Monterey Bay Unified Air Pollution Control District (MBUAPCD). The site falls under the federal jurisdiction of the United States Environmental Protection Agency Region IX.

Under the Federal Clean Air Act, air basins designated as “non-attainment” were required to prepare air quality plans that set forth a strategy to attain the standards. The plans and programs developed for a given state are referred to as State Implementation Plans (SIPs). California’s SIP comprises plans developed at the regional or local level. Under the California Clean Air Act, air basins designated as “non-attainment” with respect to the state standards must prepare plans to achieve the standards or that, at a minimum, implement all feasible measures. Therefore, the Monterey Bay Unified Air Pollution Control District (MBUAPCD) prepared and adopted the 1991 Air Quality Management Plan for the Monterey Bay Region (1991 AQMP) that addressed planning requirements related to the state ozone standard and recommended adoption of measures to control emissions. The AQMP was updated in 2004.

The CARB, California’s state air quality management agency, regulates mobile emissions sources and oversees the activities of Air Pollution Control Districts and Air Quality Management Districts. CARB indirectly regulates local air quality by establishing state ambient air quality standards and vehicle emission standards, conducting research activities, and planning and coordinating activities. The MBUAPCD is the regional agency empowered to regulate air pollution emissions from stationary sources in the NCCAB. MBUAPCD regulates air quality through its permit authority over most types of stationary emission sources and through its planning and review activities. MBUAPCD operates air quality monitoring stations that provide information on ambient concentrations of criteria air pollutants.

Existing Air Quality and Climate

The primary factors that determine air quality are the locations of air pollutant sources and the amounts of pollutants emitted, tempered by meteorological and topographical conditions. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients

interact with the physical features of the landscape to determine the movement and dispersal of air pollutants.

The NCCAB is comprised of Monterey, Santa Cruz, and San Benito Counties. The semi-permanent high pressure cell over the eastern Pacific Ocean is the basic controlling factor in the climate of the air basin. In the summer, the high pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. The onshore air currents pass over cool ocean waters and bring fog and relatively cool air into the coastal valleys. The warmer air aloft acts as a lid to inhibit vertical air movement. The generally northwest-southeast orientation of mountainous ridges tends to restrict and channel the summer onshore air currents. Typically during the fall, when surface winds become weak, north or east winds develop and transport pollutants into the NCCAB from either the San Francisco Bay Area or the Central Valley. During the winter, the Pacific high pressure area has less influence on the air basin. Air frequently flows in a southeasterly direction especially during night and morning hours. Northwest winds are still dominant in the winter, but easterly flow is more frequent. The absence of deep, persistent inversions and the occasional storm systems usually result in good air quality for the basin as a whole in winter and early spring.

The California Air Resources Board makes State area designations for ten criteria pollutants (an air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set): ozone, suspended particulate matter (PM₁₀), fine suspended particulate matter (PM_{2.5}), carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and visibility reducing particles (VRPs). At the State level, only PM₁₀ has been designated “non-attainment” in the NCCAB. Ozone levels are designated non-attainment/transitional; PM_{2.5}, carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, and lead levels have been designated attainment; and hydrogen sulfide and VRP levels have been designated unclassified. A pollutant is designated in attainment if the state standard for that pollutant was not violated at any site in the area during a three-year period. Conversely, a pollutant is designated non-attainment if there was at least one violation of a State standard for that pollutant in the area. Unclassified means the data is incomplete and designation of attainment or non-attainment is not supportable. An area is designated non-attainment/transitional to signify that the area is close to attaining the standard for that pollutant. The North Central Coast Air Basin remains on the borderline between attainment and non-attainment for ozone in part due to variable meteorological conditions occurring from year to year, transport of air pollution from the San Francisco Bay Area, and locally generated emissions.

The table below shows current state and federal air quality designations.

	State Levels	Federal Levels
Ozone	Non-attainment /Transitional	1 hour & 8 hour standard: Attainment
Carbon Monoxide	Attainment	Unclassified
Nitrogen Dioxide	Attainment	Unclassified
Sulfur Dioxide	Attainment	Unclassified
Particulate matter (PM ₁₀)	Non-Attainment	Unclassified
Particulate Matter (PM _{2.5})	Attainment	Unclassified
Sulfates	Attainment	N/A
Lead	Attainment	N/A
Hydrogen Sulfide	Unclassified	N/A
Visibility Reducing Particles	Unclassified	N/A

The MBUAUAPCD operates ten monitoring stations throughout Monterey, Santa Cruz and San Benito counties. The nearest one to the project site is the Scotts Valley station, located at 4859 Scotts Valley Dr., which recorded one instance of exceeding state 1-hour ozone standards between 2003 and 2005. The station does not monitor PM₁₀ (MBUAPCD 2006).

CEQA and Air Quality

MBUAPCD has prepared CEQA guidelines for air quality within the air district. Quantitative thresholds of significance of air quality impacts established by MBUAPCD include:

- Emission of 137 lb. or more of VOC or NO_x.
- Direct emission of 550 lb./day or more of CO.
- Generation of traffic that significantly affects levels of service.
- Direct emission of 82 lb./day or more of PM₁₀ on site during operation or construction. For a construction site with minimal earthmoving, such as this project, the air district estimates that 8.1 acres would need to be disturbed per day to exceed this threshold.
- Generation of traffic on unpaved roads of 82 lb./day or more of PM₁₀.
- Direct emission of 150 lb./day or more of SO_x.
- Violation of any CO, PM₁₀, or toxic air contaminant standards at an existing or reasonably foreseeable sensitive receptor.

Sensitive Receptors

Land uses such as schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because infants and children, the elderly, and people with health afflictions, especially respiratory ailments, are more susceptible to respiratory infections and other air quality-related health problems than the general public. Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly)

tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present.

The nearest school is Boulder Creek Elementary School, approximately six miles from the project site. The project site is surrounded by the Park and is distant from any residences, with the exception of employee residences. There are no hospitals within two miles of the project site.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT*:				
a) Conflict with or obstruct implementation of the applicable air quality plan or regulation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations (e.g., children, the elderly, individuals with compromised respiratory or immune systems)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

* Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make these determinations.

DISCUSSION

- a) Work proposed by this project will not conflict with or obstruct the implementation of any applicable air quality management plan for Monterey Bay Unified Air Pollution Control District. No impact.
- b,c) The proposed project will not emit air contaminants at a level that, by themselves, will violate any air quality standard, or contribute to a permanent or long-term increase in any air contaminant. However, project implementation will generate short-term emissions of fugitive dust (PM₁₀) and involve the use of equipment and materials that will emit ozone precursors. Increased emissions of PM₁₀ and ozone precursors could contribute to existing non-attainment and non-attainment/transitional conditions, which could interfere with achieving the projected attainment standards. However, integration of the following conditions into the project design will reduce potential impacts to a less than significant level.

PROJECT CONDITION AIR-1

- | |
|---|
| <ul style="list-style-type: none">• All active construction areas will be watered at least twice daily during dry, dusty conditions.• All trucks hauling soil, sand, or other loose materials on public roads will be covered or required to maintain at least two feet of freeboard.• All equipment engines will be maintained in good condition, in proper tune (according to manufacturer's specifications), and in compliance with all State and federal requirements.• Excavation and grading activities will be suspended when sustained winds exceed 25 miles mph, instantaneous gusts exceed 35 mph, or dust from construction might obscure driver visibility on public roads.• Earth or other material that has been transported onto paved streets by trucks, construction equipment, erosion, or other project-related activity will be promptly removed. |
|---|

- d) As noted in Discussion III(b,c) above, project construction will generate dust and equipment exhaust emissions for the duration of the project. Park visitors with conditions that make them sensitive to these emissions will have the option of avoiding the area altogether or remaining in portions of the Park that will be upwind or protected from blowing dust or other emissions. Equipment use that could generate fugitive dust would be of limited duration, both in daily operation and as a percentage of the proposed work for this project. Integration of Project Condition **AIR-1** above, into the project design will reduce potential impacts to a less than significant level.
- e) Proposed work will not result in the long-term generation of odors. Construction-related emissions might result in a short-term generation of odors, including diesel exhaust and fuel vapors; these odors might be considered objectionable by some Park visitors and employees. However, construction activities will be short-term and odorous emissions will dissipate rapidly in the air, with increased distance from the source. Potential odor impacts would be considered less than significant.

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IV. BIOLOGICAL RESOURCES.

ENVIRONMENTAL SETTING

Big Basin Redwoods State Park is located 25 miles northeast of Santa Cruz, near the small town of Boulder Creek. The Park is in two county jurisdictions: the southern portion of the Park, where this project takes place, is in Santa Cruz County and a small northern portion of the Park is in San Mateo County. Situated in the Santa Cruz Mountains, a prominent mountain range running in a northwest direction from Watsonville to South San Francisco, the Park is within 60 miles of major metropolitan centers in the San Francisco Bay Area and Santa Clara Valley. State Route 236 provides vehicular access to the eastern portion of the Park while access to the western and coastal portions of the Park is via State Route 1.

The Park's 18,000+ acres of steep coastal mountains and canyons and small coastal areas encompass redwood/Douglas-fir forests, hardwood forests, knobcone pine woodlands, annual grasslands, coastal scrub, and chaparral vegetation. Most of the project worksites occur in redwood/Douglas-fir forests. Three watersheds, including the Waddell, Año Nuevo, and Scott Creeks, form the dominant landscape features of Big Basin Redwoods State Park. Most of the creeks and streams in the Park drain into the Waddell Creek watershed. Elevations in the unit range from sea level to the 2,488-foot summit area of Eagle Rock.

Vegetation

Big Basin Redwoods SP exhibits a significant diversity of plant community types. Vegetation within the Park comprises 15 vegetation series (i.e. plant community or alliance), as defined by the Sawyer/Keeler-Wolf (1995) classification system. Of these 15 communities, seven are considered by the Department of Fish and Game Natural Diversity Data Base (CNDDDB 2006) to be rare natural communities of high inventory priority, identified by **bold type**. In addition, the redwood series is especially significant because it provides habitat for several sensitive wildlife species, including the federally listed as threatened marbled murrelet. The 15 community types are:

- Redwood
- Douglas-fir
- Interior live oak
- Canyon live oak
- Coast live oak
- **Arroyo willow**
- **Red alder**
- **Monterey pine**
- **Knobcone pine**
- **Santa Cruz cypress stand**
- Chamise
- Coyote brush - California sagebrush
- **Sand verbenia - beach bursage**
- **Bulrush**
- California annual grassland

The new proposed water line from the Upper Tanks to the Sky Meadow tank is located in a mix of chamise, interior live oak, and canyon live oak series vegetation types. All other project

work sites occur within either a Douglas-fir series (Panoramic Tank and access road) or in a redwood series vegetation type.

Chamise series is a shrub community dominated by chamise and either brittle-leaf manzanita (*Arctostaphylos tomentosa* ssp. *crustacea*) or Ft. Bragg manzanita (*Arctostaphylos nummularia*). Chamise is most dominant on the hottest, driest slopes (e.g. south-facing slopes). Associated trees and shrubs include canyon live oak (*Quercus chrysolepis*), knobcone pine (*Pinus attenuata*), warty-leaved ceanothus (*Ceanothus papillosus* var. *roweanus*), toyon (*Heteromeles arbutifolia*), yerba santa (*Eriodictyon californicum*), giant chinquapin (*Chrysolepis chrysophylla* var. *minor*), bush monkey flower (*Mimulus aurantiacus*), bush poppy (*Dendromecon rigida*), and California huckleberry (*Vaccinium ovatum*). The herbaceous layer can include Henderson's shooting star (*Dodecatheon hendersonii*), Indian warrior (*Pedicularis densiflora*), live-forever (*Dudleya cymosa*), coyote mint (*Monardella villosa*), scarlet larkspur (*Delphinium nudicaule*), and Pacific stonecrop (*Sedum spathulifolium*).

Interior live oak and canyon live oak series are very similar in vegetative structure and associated species. The canopy of the former is dominated by interior live oak (*Quercus wislizenii*) and the latter is dominated by canyon live oak, although both oak species are common components of the canopy of each series. Less common in their canopies are coast live oak (*Quercus agrifolia*), knobcone pine, and California bay laurel (*Umbellularia californica*). Canopy closure is less than 75% on some sites. The shrub and ground layers are usually sparse and open, but can include bush monkey flower, chamise, mountain iris (*Iris douglasiana*), brittle-leaf manzanita, and various ferns.

The Douglas-fir series is dominated by Douglas-fir (*Pseudotsuga menziesii*). Tanoak (*Lithocarpus densiflorus*) and madrone (*Arbutus menziesii*) are common components of the canopy. The shrub layer includes thimbleberry (*Rubus parviflorus*), California huckleberry, western sword fern (*Polystichum munitum*), and California blackberry (*Rubus ursinus*). Drier areas support common snowberry (*Symphoricarpos albus* var. *laevigatus*), poison oak (*Toxicodendron diversilobum*), blue blossom (*Ceanothus thyrsiflorus*), creeping snowberry (*Symphoricarpos mollis*), bush monkey flower, and hairy honeysuckle (*Lonicera hispidula* var. *vacillans*). Commonly encountered herbaceous species include redwood sorrel (*Oxalis oregana*), wild ginger (*Asarum caudatum*), redwood violet (*Viola sempervirens*), western wake-robin (*Trillium ovatum*), false Solomon's seal (*Smilacina racemosa*), fairy bells (*Disporum hookeri*), striped coral root (*Corallorhiza striata*), spotted coral root (*Corallorhiza maculata*), miner's lettuce (*Claytonia perfoliata*), Fremont's star lily (*Zigadenus fremontii*), hedge nettle (*Stachys bullata*), milk maids (*Cardamine californica*), mountain iris, slender-tubed iris (*Iris macrosiphon*), and yerba de selva (*Whipplea modesta*).

The redwood series is dominated by redwood (*Sequoia sempervirens*) in the canopy. Douglas-fir, tanoak, and madrone are common components of the canopy. In drier locations redwood, Douglas-fir, and tanoak are co-dominants. Commonly encountered species in the shrub layer include California huckleberry, thimbleberry, western sword fern, creeping snowberry (*Symphoricarpos mollis*), and California hazelnut (*Corylus cornuta* var. *californica*). Poison oak and blue blossom are found in drier or more open areas. The ground layer can include five-finger fern (*Adiantum aleuticum*), wild ginger, redwood sorrel, slinkpod (*Scoliopus bigelovii*), red clintonia (*Clintonia andrewsiana*), redwood violet, trail plant (*Adenocaulon bicolor*), western wake-robin, false Solomon's seal, fairy bells, striped coral root, spotted coral root, and yerba de selva.

Special-Status Species¹

Queries of the California Department of Fish and Game's Natural Diversity Database (CNDDDB 2006) and the California Native Plant Society's On-line Inventory (CNPS 2006) were conducted for sensitive biological resources that are known to occur within the Año Nuevo, Big Basin, Davenport, and Franklin Point 7.5-minute U.S.G.S. quadrangle maps. This proposed project has been evaluated for potential impacts to all sensitive biological resources that occur, or could occur, in the project vicinity.

Sensitive biological resources include plants and animals that have been given special recognition by federal, state, or local resource agencies and organizations. Also included are habitats that are listed as critical for the survival of a listed species or have special value for wildlife species, and plant communities that are unique or of limited distribution and are considered sensitive. Threatened and Endangered plants and wildlife species and Species of Concern are special-status species that have legal protection.

SENSITIVE SPECIES THAT ARE KNOWN TO OCCUR, OR COULD POTENTIALLY OCCUR, WITHIN THE PROJECT AREA

PLANTS

The CNDDDB reports occurrences of 42 special-status plant species for the Año Nuevo, Big Basin, Davenport, and Franklin Point 7.5-minute U.S.G.S. quadrangle maps. The CNPS lists 33 special-status species (CNPS List 1B or 2) for these quadrangles, most of which appear on the CNDDDB list. Combined, there are 46 special-status plant species with a CNPS listing status of 1B or 2. Of this total, ten species are reported to occur within Big Basin Redwoods State Park and another five species are known to occur on lands adjacent to or near the Park.

The CNPS List 1B species are arcuate bush mallow (*Malacothamnus arcuatus*), Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*), Blasdale's bent grass (*Agrostis blasdalei*), Kings Mountain manzanita (*Arctostaphylos regismontana*), Monterey pine (*Pinus radiata*), pine rose (*Rosa pinetorum*), San Francisco campion (*Silene verecunda* ssp. *verecunda*), San Francisco collinsia (*Collinsia multicolor*), Santa Cruz cypress (*Cupressus abramsiana*), Santa Cruz manzanita (*Arctostaphylos andersonii*), Santa Cruz microseris (*Stebbinsoseris decipiens*), Santa Cruz Mountains beardtongue (*Penstemon rattanii* var. *kleei*), Schreiber's manzanita (*Arctostaphylos glutinosa*), and white-rayed pentachaeta (*Pentachaeta belldiflora*). The one CNPS List 2 species is slender silver moss (*anomobryum filiforme*). Ben Lomond spineflower is listed as federally endangered and the Santa Cruz cypress is federally and state listed as endangered.

¹ For the purposes of this document, special-status species are defined as plants and animals that are legally protected or that are considered sensitive by federal, state, or local resource conservation agencies and organizations. Specifically, this includes species listed as state or federally Threatened or Endangered, those considered as candidates for listing as Threatened or Endangered, species identified by the USFWS and/or CDFG as Species of Concern, animals identified by CDFG as Fully Protected or Protected, and plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered (i.e., plants on CNPS lists 1 and 2).

Nearly all of the species appearing on the CNDDDB and CNPS lists, including those known to occur in the Park or on adjacent lands, are restricted to habitat types that do not exist within or adjacent to the project site. Examples of habitat types that do not occur within the project site include coastal scrub, closed cone coniferous forest, coastal dunes, coastal prairie, and marshes and swamps (brackish and salt water). Although Ben Lomond spineflower occurs at Slippery Rock within a mile of the Pumphouse work site, it is restricted to the edges of the Slippery Rock sandstone outcrop. No suitable habitat for the species occurs in the project area. Potentially suitable habitat does exist for three sensitive plant species, which are described below.

Kings Mountain manzanita (*Arctostaphylos regismontana*). This CNPS List 1B shrub species blooms from January through April and occurs in chaparral, broadleaved upland forest, and North Coast coniferous forest habitat types. It has been reported within the Park in the vicinity of the Big Basin Headquarters, but the taxonomic identification of this occurrence has been questioned by knowledgeable experts. Potentially suitable habitat occurs along the proposed water line between the Upper Tanks and the Sky Meadow Tanks. Surveys have failed to locate this species within the project area.

Santa Cruz Mountains beardtongue (*Penstemon rattanii* var. *kleei*). This CNPS List 1B perennial herb blooms from May through June and occurs in chaparral, lower montane coniferous forest, and North Coast coniferous forest habitat types. It is endemic to the Santa Cruz Mountains and has been reported to occur in the Eagle Rock area on private property adjacent to Big Basin Redwoods SP (outside the project area). Surveys have failed to locate this species within the project area.

Santa Cruz Mountains manzanita (*Arctostaphylos andersonii*). This CNPS List 1B shrub species blooms from November through April and occurs in openings within chaparral, broadleaved upland forest, and North Coast coniferous forest habitat types. It has been found in a few locations of the Park, including the China Grade and Eagle Rock areas. Surveys have failed to locate this species within the project area.

INVERTEBRATES

Unsilvered fritillary butterfly (*Speyeria adiaspe adiaspe*) - This subspecies has no State or Federal listing status, but is ranked by CNDDDB as Global Rank G1G2 (i.e., the full species is considered extremely endangered) and is State Ranked T1S1 (i.e., the subspecies is found only in California and is extremely endangered throughout its range). This subspecies occupies meadows and seeps in evergreen forests, oak forests, and grasslands with *Viola* plant species. This subspecies has been observed in an open grassland area along the East Ridge Trail of Big Basin. There is no habitat for this subspecies within the project area, therefore, no impacts to the subspecies will occur as a result of project implementation.

AMPHIBIANS

California red-legged frog (*Rana aurora draytonii*) – Federal Threatened and California Special Concern species. California red-legged frogs are found in ponds and intermittent streams that retain year-round pools of water. They may move out of riparian zones seasonally within aquatic habitats between breeding sites and foraging habitat. California red-legged frogs have been documented at Sempervirens Reservoir, less than ¼ mile from the water treatment

plant project site. There is potential for California red-legged frogs to be moving through suitable upland habitat at both the water treatment plant site and the outer picnic project site near Opal Creek. Impacts could occur to this species as a result of project implementation.

Foothill yellow-legged frog (*Rana Boylii*) - California Special Concern species. Yellow-legged frogs require partly shady, shallow streams and riffles with a rocky substrate. Threats include water diversions and sedimentation from logging. These frogs are potentially present in numerous streams and creeks within the Park. No project-related activities are proposed within any streams or creeks in the Park. Therefore, this species will not be affected by project implementation.

REPTILES

Coast horned lizard (*Phrynosoma coronatum*) - A California Special Concern species that may be present in the coastal scrub and mixed chaparral habitats within the Park. Horned lizards forage between shrubs on ants, beetles, and other insects. Threats include loss of habitat, loss of prey (native ants), and domestic predators like housecats. Suitable chaparral habitat occurs within the Upper Tanks and Sky Meadow Tank area for this species. Therefore, impacts could occur to this species as a result of project implementation.

San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) –California Endangered and Federal Endangered. San Francisco garter snakes occur in a variety of aquatic habitats such as freshwater marsh, low-gradient streams, ponds, drainage canals, and irrigation ditches. They depend heavily on frogs for food, and require suitable adjacent brushy upland habitat for basking and burrows. Threats include habitat loss and fragmentation. The nearest known occurrence of the snake is near the coast in the Rancho del Oso area, where it is established in the wetland areas around the mouth of Waddell Creek. There is no suitable habitat for the species within the project area. Therefore, no impacts to this species will occur as a result of project implementation.

Western pond turtle (*Clemmys marmorata*) – A California Species of Concern that occurs in streams, ponds, freshwater marshes, and lakes where there is slow-moving water with partially submerged woody debris, rocks, or similar substrates for basking. Possible threats include recreational activities, collecting, and habitat disturbance. Pond turtles have been documented near the coast from Waddell Creek Lagoon to approximately two miles upstream, which is outside the project area. Since there is no suitable habitat for western pond turtle within the project area, no impacts will occur to the species as a result of project implementation.

FISH

Tidewater goby (*Eucyclogobius newberryi*) – Federal Endangered and California Special Concern species. Tidewater gobies are found in shallow brackish water habitats of lagoons and lower stream reaches. Threats include loss of coastal marsh caused by water diversions and alteration of flows. Waddell Creek and the Lagoon, located outside the project area, provide habitat for tidewater goby. No impacts to Waddell Creek or the Lagoon will occur and therefore no impacts to tidewater goby will occur as a result of project implementation.

Coho salmon - Central California ESU (*Oncorhynchus kisutch*) – Federal Threatened and

California Endangered. Waddell Creek is a known coho stream. Threats include siltation and summer de-watering from agriculture. Some of the project sites are adjacent to Opal Creek and Sempervirens Creek, which are both tributaries to East Waddell Creek, however, no project activities are proposed within the stream or along the banks of Opal or Sempervirens Creeks. Therefore, no impacts to this species will occur as a result of project implementation.

North Central Coast short-run coho stream – CNDDDB gives this Run a rank notation of G? and S? (i.e., there isn't enough information to rank the species). Both **coho** (*Oncorhynchus kisutch*) and **steelhead** (*Oncorhynchus mykiss*) have been known to spawn in Waddell Creek from the mouth to about four miles upstream including the lower reach of East Waddell Creek. Threats to the stream are attributed to agricultural water diversions and sediment deposition from previous logging. The project area is located outside the stream bed and bank. Therefore, no impacts to these species will occur as a result of project implementation.

BIRDS

Marbled murrelet (*Brachyramphus marmoratus*) – Federal Threatened and California State Endangered. The murrelet is a small seabird that flies inland to nest in coastal forests where it usually lays only one egg. Potential habitat is defined as mature and old-growth coniferous forests, and younger coniferous forests that have platform trees. Trees must have large limbs or deformities that provide nest platforms. A platform is a relatively flat surface at least four inches in diameter located in the live crown of a coniferous tree. Platforms can be bare or moss covered branches, tree deformities, or structures such as squirrel nests. (Evans Mack 2003) In California, murrelets spend most of the time offshore foraging on small ocean fish and invertebrates. The main cause of population declines has been the loss of forest nesting habitat due to timber harvest. However, current threats also include other factors such as oil spills and predation of eggs by unnaturally high populations of Steller's jays (*Cyanocitta stelleri*) and common ravens (*Corvus corax*).

A dwindling population of breeding marbled murrelets can be found in the old-growth redwood forest in the Headquarters and surrounding areas of Big Basin Redwoods State Park. Murrelet surveys in four parks in the Santa Cruz Mountains have shown a severe reduction in detections of murrelets in the past 10 years. Within the Park, the 2005 surveys yielded the lowest activity levels yet recorded for the Park. Murrelet numbers from the other parks also show similar declines (Suddjian 2005). Suitable nesting habitat occurs within ¼ mile of all but one site (Upper Residence site) in the project area. Impacts could occur to marbled murrelet as a result of project implementation.

Vaux's swift (*Chaetura vaux*) (**nesting**) – California Special Concern species. Nests are typically built on inner walls of large, hollow redwood or Douglas-fir trees or snags. Threats are primarily attributed to habitat destruction. Vaux's swifts have been observed in the vicinity of the Headquarters area and have been known to nest in the Huckleberry Campground area of Big Basin Redwoods SP. Potential nesting snags are present in the vicinity of the Panoramic Tank and may occur near other project sites; however, potential nesting trees will not be removed or altered as part of this project. If project work occurred during nesting season for Vaux's swift, impacts to this species could occur as a result of project implementation.

Black swift (*Cypseloides niger*) (**nesting**) – This is a California Special Concern species that

has been known to nest on the vertical face of Berry Creek Falls in Big Basin Redwoods SP. Black swifts only nest on cliffs behind or adjacent to waterfalls or steep coastal cliffs. There is no nesting habitat for this species within the project area. Therefore, no impacts to this species will occur as a result of project implementation.

Purple martin (*Progne subis*) (**nesting**) – California Special Concern species. Nests generally occur in former woodpecker cavities and sometimes in nesting boxes, bridges, and culverts. Their declining numbers are attributed to loss of habitat, removal of snags, and competition for nest cavities from European starlings (*Sturnus vulgaris*) and house sparrows (*Passer domesticus*). Purple martins are not known to nest in Big Basin Redwoods SP. No impacts to this species will occur as a result of project implementation.

American peregrine falcon (*Falco peregrinus anatum*) (**nesting**) – California State Endangered and California Fully Protected. The peregrine's nest is typically a scrape on a cliff ledge, however they will occasionally use a tree cavity or an old stick nest. Declines are primarily attributed to the use of the pesticide DDT and its breakdown product DDE. Peregrine falcons are known to breed in Big Basin Redwoods SP and have been observed in the Headquarters meadow area and in the Opal Creek watershed. If project work is conducted during the nesting season, impacts to this species could occur as a result of project implementation.

Golden eagle (*Aquila chrysaetos*) (**nesting and wintering**) – California Special Concern species and California Fully Protected. Golden eagles build large platform nests in isolated sites on cliffs, ledges, and large trees in open areas. Human disturbance at active nest sites, loss of foraging habitat, and electrocution on power poles are known factors impacting golden eagle populations. Golden eagles are not known to nest in Big Basin Redwoods SP and will therefore not be affected by project implementation.

California spotted owl (*Strix occidentalis occidentalis*) – California Special Concern species. Spotted owls use a wide array of nesting habitat and successfully reproduce in old-growth, or mixed mature and old-growth, coniferous forests. Forests are usually dominated by firs or Douglas-fir, but they also use mature hardwood forests of cottonwoods, alders, oak, and sycamore, especially along steep-walled river valleys. Threats include logging, forest fragmentation, and human disturbance. There have been reports of an occasional observation during the non-breeding season; however spotted owls are not known to nest in Big Basin Redwoods SP. Since California spotted owl is not known to nest in the Park unit, impacts to the species from project implementation is not likely.

Raptors: All raptors and their nests are protected under the Fish and Game Code (Section 3503.5). While there are currently no known raptor nests within the project area, some potential exists for raptor species to nest within or near the proposed project sites. The following sensitive raptor species may occur within the project area. **Cooper's hawk** (*Accipiter cooperi*) (**nesting**) – California Special Concern species; **Northern harrier** (*Circus cyaneus*) (**nesting**) - California Special Concern species; **white-tailed kite** (*Elanus leucurus*) (**nesting**) – California Fully Protected; **sharp-shinned hawk** (*Accipiter striatus*) (**nesting**) – California Special Concern species; **Western screech owl** (*Megascops kennicottii*); **Northern pygmy owl** (*Glaucidium gnoma*) and **Northern saw-whet owl** (*Aegolius acadicus*). Impacts to these species could occur if the project was constructed during nesting season and nests were

located near the project area.

Loggerhead shrike (*Lanius ludovicianus*) (**nesting**) – Federal Species of Concern and a California Species of Concern. Loggerhead shrikes prefer open habitat where they feed on insects, and occasionally small birds and mammals. They are known to nest in open fields with scattered shrubs and trees. Loggerhead shrikes are occasionally seen in Big Basin Redwoods SP. The proposed project will not impact nesting habitat for loggerhead shrike and therefore is not expected to affect this species.

Yellow warbler (*Dendroica petechia brewsteri*) (**nesting**) – California Special Concern species. In the summer, the yellow warbler may be found in riparian deciduous habitats that support cottonwoods, willows, alders, and other small trees and shrubs. Threats include habitat loss and nest failure due to brown-headed cowbird brood parasitism. The proposed project will not impact habitat for the yellow warbler and therefore is not expected to affect this species.

Willow flycatcher (*Empidonax traillii*) (**nesting**) - California State Endangered. This migrant species is primarily found in riparian habitats nesting near streams or seeps. Threats include habitat loss and nest failure due to brown-headed cowbird brood parasitism. The proposed project will not impact willow flycatcher habitat and therefore is not expected to affect this species.

MAMMALS

Santa Cruz kangaroo rat (*Dipodomys venustus venustus*) – This subspecies has no State or Federal listing status, but is ranked by CNDDB as a State T1S1 subspecies (i.e., found only in California and extremely endangered throughout its range). Threats include loss of chaparral habitat and recreational use that collapses burrows and erodes soil. Suitable chaparral habitat occurs within the Upper Tanks and Sky Meadow Tank area for this project. Impacts to this subspecies could occur as a result of project implementation.

Townsend's big-eared bat (*Corynorhinus townsendii*), **pallid bat** (*Antrozous pallidus*), and **Western mastiff bat** (*Eumops perotis*) – These bats are California Special Concern species that are found in a variety of habitats including coniferous forests and may roost in caves, rock crevices, or cavities of trees. No potential roosting habitat will be removed as a part of this project. Therefore, no impacts will occur to bat species as a result of project implementation.

Ringtail (*Bassariscus astutus*) – This is a California Fully Protected nocturnal species that inhabits mixed riparian and other forest and shrubby habitats that are in close association with permanent water and rocky areas. They nest in rock crevices, hollow trees, logs, snags, abandoned burrows, or woodrat nests. The young are typically born in May and June. They have been observed near Park Headquarters. No potential nesting habitat will be impacted by this project, therefore, ringtail will not be affected by project implementation.

Sensitive Plant Communities

Sensitive plant communities are regionally uncommon or unique, unusually diverse, or of special concern to local, state, and federal agencies. Removal or substantial degradation of these plant communities constitutes a significant adverse impact under CEQA. The CNDDDB record search of the Año Nuevo, Big Basin, Davenport, and Franklin Point 7.5-minute U.S.G.S. quadrangle maps produced a list of six sensitive plant communities. These are Coastal Brackish Marsh, Monterey Pine Forest, Northern Interior Cypress Forest, Maritime Coast Range Ponderosa Pine Forest, Northern Coastal Salt Marsh, and Northern Maritime Chaparral. Although the first three communities are present in the Park, they do not occur within or adjacent to the project work sites.

Wetlands and Waters of the United States

The U.S. Army Corps of Engineers (USACOE) defines wetlands as lands that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Typically, USACOE jurisdictional wetlands meet three criteria: they have hydrophytic vegetation, hydric soils, and wetland hydrology.

Waters of the U.S. are defined as all waters used in interstate or foreign commerce, waters subject to the ebb and flow of the tide, all interstate waters including interstate wetlands and all other waters such as: intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds. Waters of the U.S. are under the USACOE jurisdiction.

A site investigation for the presence of USACOE-jurisdictional wetlands and Waters of the U.S. was conducted within the project area on February 21 and 22, 2006 by a DPR-qualified biologist. No USACOE-jurisdictional wetlands were found within the project work sites, although a less than 1/8-acre area patch of hydrophytic vegetation occurs in the Lower Residence Area work site boundary. No Waters of the U.S. will be directly affected by this project.

The project site is outside the Coastal Zone, therefore no wetlands, as defined by and protected under the Coastal Act, will be affected by implementation of this project.

<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
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ISSUES

IV. BIOLOGICAL RESOURCES. Would the project:

- a) Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a sensitive, candidate, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?

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|--|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Have a substantial adverse effect on federally protected wetlands, as defined by §404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

a) (i) **Marbled Murrelet.** Several occurrences of nesting marbled murrelets have been recorded within the boundaries of Big Basin Redwoods SP. All of the project sites except the Upper Residence have platform trees within ¼ mile of the project area. (See Environmental Setting above for discussion of platform trees.) During the breeding season (March 24 through September 15), marbled murrelets could nest within ¼ mile of project sites. In addition, tree removal or trimming is proposed along the access road to the Panoramic Tank to allow for equipment access. A few small trees may also be trimmed or removed in the excavation site adjacent to the Panoramic Tank to allow for construction of the replacement steel tank. After meeting with the California Department of Fish and Game, the following avoidance measures were prepared to prevent the disturbance or loss of active nests and reduce project-related impacts to nesting murrelets to a less than significant level.

MITIGATION MEASURE BIO-1: MARBLED MURRELET

- No project construction-related activities shall occur during the breeding season (March 24 through September 15) in sites located within ¼ mile of potential nesting trees, to avoid direct or indirect (noise) take of marbled murrelets, unless otherwise negotiated with the California Department of Fish and Game and U. S. Fish and Wildlife Service.
- All construction related activities shall not begin until 2 hours after sunrise and shall cease 2 hours before sunset.
- No trees greater than 12 inches diameter at breast height (dbh) shall be removed as a result of this project.
- All tree removal work will occur between September 1 and February 1 to protect nesting birds, unless otherwise negotiated with the California Department of Fish and Game and the U. S. Fish and Wildlife Service.
- Construction personnel will be trained by a DPR-qualified biologist in the life history of the marbled murrelet and its habitat.

a) (ii) **Nesting Raptors.** Potential nesting habitat occurs within, or near, the project area for several sensitive raptor species. Raptors and their nests are protected under Fish and Game Code §3503.5. The following avoidance measures are designed to prevent the disturbance or loss of active nests and reduce project-related impacts to nesting raptors to a less than significant level.

MITIGATION MEASURE BIO-2: NESTING RAPTORS
<ul style="list-style-type: none"> • If construction-related activities are scheduled to begin February 1 through August 31 (nesting season), a focused survey for raptor nests will be conducted by a DPR-qualified biologist during the nesting season to identify active nests within 500 feet of the project area. The survey will be conducted within 30 days prior to the beginning of construction. • If nesting raptors are found, no construction will occur within a 500-foot radius of the nest tree during the active nesting season of February 1 through August 31, or until the young have fledged (as determined by a DPR-qualified biologist), unless otherwise negotiated with the California Department of Fish and Game. • All tree removal work will occur between September 1 and February 1 to protect nesting raptors, unless otherwise negotiated with the California Department of Fish and Game and the U. S. Fish and Wildlife Service.

a) (iii) **Nesting bird species under Migratory Bird Treaty Act.** Nests of migratory bird species could occur within the proposed project area. The following avoidance measures are designed to reduce project-related impacts to nesting migratory bird species to a less than significant level.

MITIGATION MEASURE BIO-3: MIGRATORY BIRD SPECIES
<ul style="list-style-type: none"> • If construction-related activities are scheduled to begin during the nesting season of March 1 to September 15, a DPR-qualified biologist will conduct a survey for nesting bird species within 14 days prior to commencement of construction at each site to ensure that no nesting birds will be impacted by the project. The survey area will include the project site and a 100-foot zone around it. • If active nests are located, all construction disturbance activities within a 100-foot radius (or as negotiated with DFG on a case-by-case basis, based upon species and location of nest) of the nest tree shall be postponed until the nest is vacated and juveniles have fledged and when there is no evidence of a second attempt at nesting. • All tree removal work will occur between September 1 and February 1 to protect nesting birds, unless otherwise negotiated with the California Department of Fish and Game and the U. S. Fish and Wildlife Service.

a) (iv) **Coast Horned Lizard.** Although the coast horned lizard is not reported from within the project area, suitable habitat exists in the Upper Tanks and Sky Meadow Tank area. The following measures are designed to reduce project-related impacts to the coast horned lizard, if present, to a less than significant level.

MITIGATION MEASURE BIO-4: COAST HORNED LIZARD

- A morning site inspection for coast horned lizards will be conducted by a DPR-qualified biologist prior to the start of construction each day that construction is scheduled in coast horned lizard habitat.
- If a coast horned lizard is found within the project area, construction in that location will cease until the animal has moved out of the construction area of its own accord, or is removed from the site by a qualified biologist.
- Construction activity within coast horned lizard habitat will also be spot checked during the work day by a DPR-qualified biologist.
- Project excavations will be covered at night with plastic, or another approved method that prevents animals from being trapped.
- Construction personnel will be instructed by a DPR-qualified biologist in the life history of the coast horned lizard and its habitat.

a) (v) **Santa Cruz Kangaroo Rat.** Although the Santa Cruz kangaroo rat is not reported from within the project area, suitable habitat exists in the Upper Tanks and Sky Meadow Tank area. The following measures are designed to reduce project-related impacts to the Santa Cruz kangaroo rat, if present, to a less than significant level.

MITIGATION MEASURE BIO-5: SANTA CRUZ KANGAROO RAT

- A morning site inspection for the Santa Cruz kangaroo rat will be conducted by a DPR-qualified biologist prior to the start of construction each day that construction is scheduled in Santa Cruz kangaroo rat habitat.
- If a Santa Cruz kangaroo rat is found within the project area, construction in that location will cease until the animal has moved out of the construction area of its own accord, unless otherwise negotiated with the California Department of Fish and Game.
- Construction activity within Santa Cruz kangaroo rat habitat will also be spot checked during the workday by a DPR-qualified biologist.
- Project excavations will be covered at night with plastic, or another approved method that prevents animals from being trapped.
- Construction personnel will be instructed by a DPR-qualified biologist in the life history of the Santa Cruz kangaroo rat and its habitat.

a) (vi) **California Red-legged Frog.** Although California red-legged frogs are not known to occur within the project area, there is potential for red-legged frogs to move through the water treatment plant site and the Outer Picnic site near Opal Creek. The following avoidance measures are designed to reduce project-related impacts to California red-legged frogs, if present, to a less than significant level.

MITIGATION MEASURE BIO-6: CALIFORNIA RED-LEGGED FROG

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| <ul style="list-style-type: none">• Immediately prior to the start of work each morning, a USFWS-approved biologist or DPR-qualified biologist will conduct a visual inspection of the construction zone, prior to the start of work.• Construction activity within the project site will also be spot checked during the workday by a USFWS-approved biologist or a DPR-qualified biologist.• If a California red-legged frog is found, start of work at that project site would be delayed until the species moves out of the site on its own accord, or is temporarily relocated by a USFWS-approved biologist.• Project excavations will be covered at night with plastic, or another approved method that prevents animals from being trapped.• Construction personnel will be instructed by a qualified biologist in the life history of the California red-legged frog and its habitat, and instruction in the appropriate protocol to follow in the event that a California red-legged frog is found onsite. |
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- a) (vii) **CNPS List 1B and 2 Species.** Ten CNPS List 1B and 2 species are reported to occur within Big Basin Redwoods State Park and another five species are known to occur on lands adjacent to or near the Park. These are arcuate bush mallow, Ben Lomond spineflower, Blasdale's bent grass, Kings Mountain manzanita, Monterey pine, pine rose, San Francisco campion, San Francisco collinsia, Santa Cruz cypress, Santa Cruz manzanita, Santa Cruz microseris, Santa Cruz Mountains beardtongue, Schreiber's manzanita, white-rayed pentachaeta, and slender silver moss. Potentially suitable habitat exists either within or adjacent to the project area only for Kings Mountain manzanita, Santa Cruz manzanita, and Santa Cruz Mountains beardtongue. A survey for the two manzanita species in appropriate habitat areas of the project was conducted on February 21 and 22, 2006 by a DPR-qualified biologist with negative results. A survey for Santa Cruz Mountains beardtongue was conducted May 10, 2006 by a DPR-qualified biologist with negative results. No impact.
- b) Redwood and Douglas-fir series are sensitive natural plant communities that occur within the project footprint. It is not anticipated that the proposed project will create significant impacts to these plant communities. However, trenching activities at a few of the project sites could damage the roots of mature native trees. Implementation of the following mitigation measure would reduce impacts to a less than significant level.

MITIGATION MEASURE BIO-7: SENSITIVE NATURAL COMMUNITIES
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| <ul style="list-style-type: none">• Within the root health zone (5 times dbh) of any native tree with a dbh of 24 inches or greater, no roots with a diameter of one inch or greater will be cut. |
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- c) As defined by the USACOE, no wetlands or "Waters of the United States" will be directly affected by implementation of this project. No impact.
- d) The project will not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors. Native wildlife nursery sites are likely to occur within the project area. Songbirds, small mammals, amphibians, and other species are likely to inhabit the project sites. Implementation of Mitigation Measures **Bio-1** through **Bio-6** above would reduce this impact

to a less than significant level.

- e) This project does not conflict with any local policies or ordinances protecting biological resources. No impact.
- f) This project does not conflict with any Habitat Conservation Plans, Natural Communities Conservation Plans, or other approved habitat conservation plan. No impact.

V. CULTURAL RESOURCES.

ENVIRONMENTAL SETTING

Paleoindian land use of the California Central Coast region has been documented in the archaeological record, with evidence of hunting, collecting, and resource processing activities occurring as early as 10,000 Before Present (BP) (Moratto 1984: 276-283). Hylkema (1991) provides an archaeological overview of Santa Cruz and San Mateo counties based upon selected sites, including some within Big Basin Redwoods SP. Prehistoric settlement patterns were evaluated using ecological zones with artifact or feature associations. One significant site addressed in his study is located on a ridge at the Big Basin Redwoods SP extreme northern boundary. Results from the study indicate sparse populations occupied coastal environments for resource procurement between 7000-4000 BP (Hylkema 1991). Site types identified in the study include both temporary special-use sites and multi-use occupation sites. Archaeological collections associated with temporary special-use site types include shell, faunal, and burned rock artifacts and display low tool diversity. Multi-use sites have longer occupation periods, with similar resources, a greater diversity of tool types, occasional human remains, and include well-defined activity features. Of the 182 sites recorded throughout the Santa Cruz and San Mateo counties, 65.5 percent are located along the coastal terrace, 13.5 percent are found in the upland meadows, 11 percent along ridges, and 10 percent along rivers (DPR 2006b).

The Big Basin Redwoods SP was established in 1902 and is California's oldest classified State Park. The acquisition represents the first successful effort to save coast redwoods from logging. Since its opening in 1904, people have enjoyed the Park almost to the detriment of the natural resources. Between 1904 and 1955 the state built many facilities designed to support recreation activities in the Park. By the mid-1950s, the Park reached the height of its recreation facility development. Remnants of the Park's early history, including Civilian Conservation Corps (CCC) era and post-World War II construction, are displayed in varying degrees of preservation at Big Basin Redwoods SP. These facilities included an open air dance floor, campfire center, swimming pond, tennis courts, cabins, dormitories, Park store, nature lodge, Headquarters, campgrounds, and picnic areas providing a village atmosphere with recreation for visitors traveling a long distance to a then-remote location. Dancing, stage performances, outdoor games, swimming, dining, and other socially interactive activities, in combination with hiking, camping, and nature study, were common within the Headquarters area of the Park (DPR 2006b).

A record review of previous cultural resource surveys in the Park and a recent pedestrian survey for this project indicate at least nine cultural resources are located in the project area. Most of these cultural properties are associated with CCC-era and post-World War II construction. These resources include existing buildings and features, building sites (structures have been destroyed), a possible archaeological site, and two historic road grades. Because the scope of the project includes the protection of cultural resources, this project will not have significant impacts to previously recorded cultural properties. To date none of these resources have been officially evaluated or nominated for inclusion into the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR). Until an official determination of significance is made in consultation with the California State Historic Preservation Officer, all cultural resources in the Area of Potential Effect (APE) will be treated as eligible for the NRHP and CRHR.

Archaeological Resources

Prehistoric

A review of documented prehistoric archaeological sites in Big Basin Redwoods SP based on various cultural resource surveys within the Park indicates eight sites have been recorded in the Park. Most of the sites are concentrated in the upland meadow zone, including the Waddell Creek drainage. Other sites in the Park have been discovered in various locations at higher elevations. None of these sites are located in the APE.

Historic

At least two and possibly three historic archaeological sites are located in the vicinity of the project area but not in the Area of Direct Impact (ADI). One of these sites was located during this current field investigation, the others were not relocated. These sites include: CA-SCR-281H, the former location of CCC Camp SP-15 (Old Lodge Site), a historic cabin site, and a former location of a water tank.

The lodge site is located on the hill north of residence 19 in the Upper Residence area. CCC Company 15 occupied the camp from October 20, 1933 to December 14, 1942. This site was also the former location of the Governor's Lodge. The buildings are no longer at the site; however, many features are still visible. Although the site is out of the project area there could be associated features near the ADI.

The cabin site is the former location of the Maddock Cabin. It was identified as a squatter's cabin built around 1877 but removed by DPR in 1938. No archaeological remains or features were found in association with this site during the original field visit or the current investigation. The map locates the site north of the valve replacement box, which is out of the ADI; as a result, the site will not be impacted by ground disruption associated with this project.

The former location of a water tank northeast of the Lower Residence area and immediately northeast of the junction of the "old road" is also within the APE. No archaeological evidence was noted during this most recent field investigation. Because possible archaeological remains are located outside of the ADI, this cultural property will not be impacted by this project. The Upper and Lower Residence areas were constructed between the 1950s and 1960s. They are considered part of a Post-War development. A statewide context for Post-War construction in State Parks is currently under evaluation. Until that evaluation is complete, this area will be treated as potentially eligible for the NRHP and the CRHR. With this potential eligibility, the residence areas have some degree of archaeological sensitivity and are located where ground disturbance (trenching) is planned in the Area of Potential Effect.

Historic Resources

A record review and field survey indicate that numerous structures and features have been located and recorded in the project area but not in the Area of Direct Impact. These resources include the Panoramic Water Tank, which is located approximately one mile north-northeast of the Park Headquarters, about 120 feet west of State Route 236. The tank was built between 1937 and 1938 by the CCC. It consists of a semi-subterranean rectangular structure. The exterior is a stucco finish with a wood shake roof. The interior has a unique design constructed

out of redwood support beams. Instead of rehabilitating the tank, a new steel tank will be constructed adjacent to the Panoramic Tank. Two additional water tanks are located at the water treatment plant. Project work does not include any activities that will adversely impact the tanks. Another water tank within the APE is still in service and will not be impacted by this project.

A historic road segment located behind the northeast corner of the yard for residence 19 (record 146) in the Upper Residence area is also adjacent to the APE. The road terminates before entering the Area of Potential Effect. There is also a historic road bed located northeast of Slippery Rock and north of the Lodge Road. The "old road" began at Lodge Road just northeast of the lower residence area. From this point, the road went north into the northwest quarter of Section 4 and then continues west where it ends at a point now under Sempervirens Reservoir. The road was probably built prior to 1912, for Water's Tie Camp, and abandoned between 1895 -1910. A segment (approximately 45 feet) of the road was destroyed during construction of the water treatment plant. The slope behind the treatment plant was excavated to provide room and fill material to develop a pad for the facility. Unfortunately this included a cut of approximately four feet into the road for approximately 45 feet. The Upper and Lower Residence areas include two locations of housing tract units currently being used by Park employees. As described above, these residences are part of the Post-War development in State Parks as most of the buildings were constructed in the 1950s and 1960s. A Post-War thematic context is currently under development. The identified Post-War period extends from 1942-1965 placing the houses and any associated outbuildings within the period of significance. Until the completion of the Post-War study, all these buildings will be treated as potentially eligible for the NRHP and CRHR.

WOULD THE PROJECT:	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
a) Cause a substantial adverse change in the significance of a historical resource, as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource, pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) Although historic resources are located in the project area, the nature and scope of the project was designed to avoid impacts to significant historic resources (Panoramic Water Tank). Two historic road grades are located in the project area. One road is located immediately northeast of residence 19 in the Upper Residence area and a segment of the Water's Tie Road is located immediately east of the water treatment plant. The Water's Tie Road was destroyed during construction of the plant and will not be impacted. The road in the Upper Residence area could be impacted by construction activities. The operation of heavy equipment or utilization for staging could cause significant impacts to the grade. The integration of Project Condition **CULT-1** below will

ensure avoidance of this site and reduce the potential impacts to historic resources to a less than significant level.

PROJECT CONDITION CULT-1: HISTORIC RESOURCES

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| <ul style="list-style-type: none">• Prior to the start of construction the road will be flagged by the DPR archaeologist assigned to the project to insure the resource is identifiable to construction workers. The operation of heavy equipment will not be allowed on the grade and it will not be used as a staging area for construction supplies.• During construction activities, a DPR-qualified archaeologist will monitor all ground disturbing activities in the Upper Residence including the vicinity of the grade. |
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The scope of the project was changed to insure the protection of the historic Panoramic Water Tank; however, abandonment of the tank could have an adverse effect through “benign neglect”. The integration of Project Condition **CULT-2** below will ensure avoidance of this site and reduce the potential impacts to the historic water tank to a less than significant level.

PROJECT CONDITION CULT-2: HISTORIC RESOURCES

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| <ul style="list-style-type: none">• Measures will be taken to properly record the Panoramic Tank prior to abandonment, including the production of as-built drawings.• Future use in another capacity (water storage for fire emergencies) will be facilitated by the district. This would aid in the process of slowing down the decay. |
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- b) Historic structures and features are located in the project area. These historic properties may have associated undocumented archaeological resources below the surface. Culturally sensitive areas for these types of resources include the Upper and Lower Residences, and the Panoramic Tank. One of the most sensitive areas is in the Upper Residence, up-slope and north/northwest of residence No. 19 where CA-SCR-281H (the former CCC camp) is located. The integration of Project Condition **CULT-3** below will ensure avoidance of this site and reduce the potential impacts to archaeological resources related to the CCC camp to a less than significant level.

PROJECT CONDITION CULT-3: ARCHAEOLOGICAL RESOURCES

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| <ul style="list-style-type: none">• All ground disruption including but not limited to trenching, excavation, and the use of heavy equipment will be monitored by a DPR-qualified archaeologist in the Upper and Lower Residence areas, and the Panoramic Tank area.• No ground disturbing activities including the operation of heavy equipment will be allowed north of the cement retaining wall behind the structures located on the north side of the road in the Upper Residence area.• The DPR archaeologist assigned to the project will be notified a minimum of three weeks prior to the start of ground disturbing activities (in culturally sensitive areas that require archaeological monitoring) to schedule and conduct monitoring. |
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The access road to the Panoramic Tank was likely constructed when the tank was built in the 1930s. Alteration to the road for construction activities in the Panoramic Tank area could cause significant impacts. The integration of Project Condition **CULT-4** below will ensure avoidance of this site and reduce the potential impacts to archaeological resources related to the Panoramic Tank road to a less than significant level.

PROJECT CONDITION CULT-4: ARCHAEOLOGICAL RESOURCES

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| <ul style="list-style-type: none">• Road preparation for transport of the new tank to the installation site adjacent to the Panoramic Tank will not include widening or leveling the historic road grade. |
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Construction staging could have significant impacts to cultural resources during site preparation or from the storage of heavy equipment, materials, and facilities. The integration of Project Condition **CULT-5** below will reduce the potential impacts to a less than significant level:

PROJECT CONDITION CULT-5: ARCHAEOLOGICAL RESOURCES

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| <ul style="list-style-type: none">• All staging areas will be pre-approved by the DPR cultural resources specialist assigned to the project. |
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Ground disturbing activities proposed as part of this project could significantly impact unknown archaeological deposits. Because of the natural ambiguity of archaeological resources (often located below the surface) and the obscured ground visibility due to vegetation, the full extent of the cultural resources may not be known in these locations. The integration of Project Condition **CULT-6** below will reduce impacts to previously unidentified archaeological sites and features to a less than significant level if encountered during ground disturbing activities.

PROJECT CONDITION CULT-6: ARCHAEOLOGICAL RESOURCES

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| <ul style="list-style-type: none">• In the event that previously unknown cultural resources (including but not limited to dark soil containing shellfish, bone, flakes stone, ground stone, or deposits of historic trash) are encountered during project construction by anyone, the state representative will put work on hold at that specific location and contractors will be redirected to other tasks. A DPR-qualified archaeologist will record and evaluate the find and work with the state representative to implement avoidance, preservation, and recovery measures as appropriate prior to any work resuming at that specific location.• If significant cultural resources are found during construction activities, a DPR-qualified historian, archaeologist and/or Native American representative (if appropriate) will monitor all subsurface work including trenching, grading, and excavation in the area of the find. |
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Design or change in project scope could have a significant impact on cultural properties. The integration of Project Condition **CULT-7** below will reduce potential impacts to these properties:

PROJECT CONDITION CULT-7: ARCHAEOLOGICAL RESOURCES

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| <ul style="list-style-type: none">• Any design changes or expansion of the project that will include additional ground disturbing activities will be approved by the DPR cultural resource specialist/s assigned to the project.• Necessary changes in design will be reported in a timely manner to the cultural resource specialist/s so appropriate conditions/mitigations can be implemented prior to the start of construction. |
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- c) Burials have not been documented or recorded in the APE or Big Basin Redwoods State Park; however, Native American sites have been documented in the Park. Although highly unlikely, ground disturbing activities associated with this project could inadvertently expose previously undiscovered human remains, which could cause significant impacts. The integration of Project Condition **CULT-8** below will reduce impacts to a less than significant level:

PROJECT CONDITION CULT-8: ARCHAEOLOGICAL RESOURCES

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| <ul style="list-style-type: none">• In the event that human remains are discovered, work will cease immediately in the area of the find and the project manager/site supervisor will notify the appropriate DPR personnel. Any human remains and/or funerary objects will be left in place or returned to the point of discovery and covered with soil. The DPR District Superintendent (or authorized representative) will notify the County Coroner, in accordance with 7050.5 of the California Health and Safety Code, and the Native American Heritage Commission (or Tribal Representative). If a Native American monitor is on-site at the time of the discovery, the monitor will be responsible for notifying the appropriate Native American authorities.• If the coroner or tribal representative determines the remains represent Native American interment, the Native American Heritage Commission in Sacramento and/or tribe would be consulted to identify the most likely descendants and appropriate disposition of the remains. Work would not resume in the area of the find until proper disposition is complete (PRC 5097.98). No human remains or funerary objects will be cleaned, photographed, analyzed, or removed from the site prior to determination.• If it is determined the find indicates a sacred or religious site; the site will be avoided to the maximum extent practicable. Formal consultation with the State Historic Preservation Officer and review by the Native American Heritage Commission/Tribal Cultural representatives will also occur as necessary to define mitigation measures or future restrictions. |
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VI. GEOLOGY AND SOILS.

ENVIRONMENTAL SETTING

Topography

Big Basin Redwoods State Park (Park) is located in the Santa Cruz Mountains of the Coast Range of California. The Park contains a complex series of more or less independent ranges and valleys with steep slopes and ridge crests averaging between 1,400 and 2,000 feet above mean sea level (msl) (see Appendix A, Figure 3). The highest elevation in the Park is 2,488 feet above msl at Eagle Rock in the southeast portion of the Park. The lowest point is sea level where Waddell Creek flows into the Pacific Ocean. The project area topography ranges from 1,420 feet msl at the Upper Tanks above Sky Meadow to approximately 700 feet msl at Park Headquarters.

Regional Geology

The information for the geologic descriptions and geologic hazards is derived mainly from the Resource Inventory by McJunkin (1983), unless otherwise referenced. The Park is located in the central Santa Cruz Mountains, within the Coast Range Geomorphic Province. The Park is located between the San Gregorio Fault to the west, and the San Andreas Fault to the east, on the Salinian block. The Zayante Fault cuts through the east-central portion of the Park. The oldest rocks in the Big Basin area are the Cretaceous-age (90-66 million years before present (BP)) Ben Lomond Mountain quartz diorite, which underlies part of the Pine Mountain area of the Park. These granitic rocks are the remnants of plutons intruded along a subduction zone that formed the eastern margin of the ancestral Pacific Ocean, somewhere near the latitude of Central America. Other rock units present are Tertiary-age (66-5 million years BP) marine sandstone, siltstone, and mudstones. Deformation of the Tertiary rocks within the region has formed northwest-trending synclines and anticlines (folds), some of which are locally cut by faults.

Geomorphic development of the present Big Basin landscape occurred in the late Pliocene to early Pleistocene (1-6 million years BP). Streams had already established their drainage patterns. At least four periods of glaciation occurred during the Pleistocene epoch (1.6 million to 10,000 years BP), with cooler, wetter climates, and fluctuations in sea level. Sea level was lowered as much as 350 feet below its present elevation during periods of active glaciation. In the Big Basin area, lowering of sea level caused extensive erosive downcutting by streams. This rapid erosion undercut the mountain slopes and caused many landslides to develop, some of them more than one square mile in area. The ancient Middle Ridge landslide covers more than three square miles in the northern portion of the Park.

The post-glacial sea level rise caused alluvial backfilling in the local creek estuaries. This alluvium helped to buttress the toes of some larger landslides along lower Waddell Creek. The drier climate also helped reduce the potential for major landsliding. The many landslides, some still active, within the Park, are the legacy of this time period.

Park Geology

Quartz diorite, a granitic rock type, underlies part of the Pine Mountain area. However, underlying most of the Park are seven Tertiary-age sedimentary formations, the most extensive being Santa Cruz Mudstone. This formation is found in the western and southern portions of the Park. It is the characteristic formation exposed along ridgetops such as Chalk Mountain. Most of the project area (Panoramic Tank and Sky Meadow areas) is located on Vaqueros Sandstone, described as thick-bedded, yellow-gray arkosic (feldspar-rich)

sandstone. The Park Headquarters area is located on Recent alluvium deposited by Opal Creek, with underlying San Lorenzo Formation, an interbedded mudstone and shale unit.

Soils

Soil information was taken from the Resource Inventory (Harrison 1983), which was derived from the countywide survey done by the US Department of Agriculture (USDA) Soil Conservation Service in 1980. Twenty different soil types have been identified within the Park. These soils have developed under sub-humid to humid climatic conditions with an annual rainfall of 51-152 centimeters (20-60 inches). All the soils show an acid reaction by field test. Soils of the uplands and terraces are acid with a pH value of 5.3-5.8 in surface soils and 4.6-5.0 in the subsoils. Differences in soil development, rainfall, temperature, drainage, and parent material have had their effect in producing a number of different soil types in the Park. Within the project area, the soils present are: Sur-Catelli Complex (Sky Meadow area), Lompico-Felton Complex (Panoramic Tank area), Ben Lomond-Felton Complex, Xerorthents rock outcrops, and Soquel Loam (Headquarters area). Selected soil properties are shown below in Table 1. All soils have low to no shrink-swell potential based on the plasticity indices.

Table 1: Soil Properties

Soil Mapping Unit	Typical Soil Profile with NRCS Classification	Erosion Potential	Permeability	Corrosion Potential
173 Sur-Catelli Complex, 50 to 75% slopes	Sur – moderately deep, excessively drained, stony sandy loam with bedrock at ~ 35 inches Catelli – moderately deep, well-drained, sandy loam with weathered sandstone bedrock at ~ 37 inches	Very high	Moderately rapid	Moderate for steel and concrete
143 Lompico-Felton Complex, 30 to 50% slopes	Lompico - moderately deep and well drained, loam to clay loam with weathered sandstone at ~ 37 inches Felton – deep, well-drained sandy to clay loam, with weathered sandstone at ~ 63 inches	High	Lompico: moderate Felton: moderately slow	High for steel and concrete
115 Ben Lomond-Felton Complex, 50 to 75% slopes	Ben Lomond – deep, well-drained sandy loam, with sandstone bedrock at ~ 46 inches Felton – as described above	Very high	Ben Lomond: moderately rapid Felton: moderately slow	Moderate for steel, low for concrete
181 Xerorthents-Rock Outcrops, 50 to 100% slopes	Shallow, sandy loam, loamy sand, or stony loam with sandstone bedrock at the surface or ~ 14 inches	Not rated (low)	Not rated (low)	Not rated (should be low)
171 Soquel Loam, 2 to 9% slopes	Very deep, moderately well drained, loam to silt loam found in valleys formed on alluvium	None to slight	Moderately slow	Not rated (should be low)

Geologic Hazards

The Park is subject to geologic hazards such as earthquakes, mass wasting (landslides and

debris flows), flooding, and coastal erosion. Coastal erosion is not an issue within the project area and is not discussed in this document. Seismic, mass wasting, and possible flooding hazards are possible within the project area and are discussed below.

Landslide Hazards

The Santa Cruz Mountains have many active and inactive landslides, debris, and earth flows. All slopes in the Park should be considered susceptible to slope failure until evaluated on a site-specific basis. Some of the larger (inactive?) landslides in the Park cover more than a square mile and occurred due to slippage along bedding planes in the sedimentary rocks. Most probably occurred during the wetter periods in the Pleistocene (1.6 million to 8,000 years BP). Some areas affected by active slides/slope failures are: the slope above the chlorinating plant, the Sky Meadow area, a section of road from Sky Meadow to the employee residences, two portions of State Route 236 west of China Grade Road, and an area along Gazos Creek road on the west side of Middle Ridge. A portion of this project is located in the Sky Meadow area where landsliding along Union Creek below Sky Meadow has caused problems with trails and sewer lines.

At the water treatment plant, the former chlorinator facility was destroyed by a debris flow during a storm in a prolonged wet period in the winter of 1980-81. The debris flow contained between 75 and 100 cubic yards of material, consisting of water, soil, and large blocks of sandstone up to 2.5 feet in diameter. Downslope velocity of the debris flow was estimated at several feet per second. The existing (replacement) chlorinator facility is built in the same location as the destroyed facility.

Seismic Hazards

The Big Basin area is located within an active seismic zone, between the San Gregorio and San Andreas Fault systems. The Zayante Fault cuts through the east central portion of the Park, approximately 1.5 miles south of the main portion of the project area, and approximately 0.5 mile from Park Headquarters. After the 1989 Loma Prieta earthquake (San Andreas Fault), some aftershocks were recorded on the Zayante Fault, indicating conjugate faulting. Strong seismic shaking can be expected to occur, with peak ground accelerations on the order of 0.5g (g = acceleration due to gravity) in some areas of the Park. Ground surface rupture is also a possibility.

Secondary seismic hazards, such as liquefaction and landsliding, may occur during an earthquake. Liquefaction could occur in loose, granular materials (alluvium) below the water table, such as along stream channels and in unconsolidated, disturbed materials. The lower reach of Waddell Creek, from the ocean to the intersection of the east and west branches, may be subject to liquefaction. Strong seismic shaking may also trigger movement on any of the many landslides within the Park.

Flood Hazards

Localized flooding is possible along the lower reach of Waddell Creek, extending about 1.5 miles inland from the ocean. Flooding may also result from the blockage of a stream channel by a landslide and then subsequent failure of the landslide dam.

Another potential source of flooding could be from the failure of Sempervirens Dam, an earth-fill structure built in 1951. This flooding would extend downstream from the dam along Sempervirens Creek, and could impact the water treatment plant.

WOULD THE PROJECT:	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area, or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable, as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste disposal systems, where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) i) No portion of the project site is within an Alquist-Priolo Earthquake Fault Zone (APEFZ) for fault rupture hazard. Published mapping has not identified any faults that run adjacent to the work areas. The closest APEFZ is the San Gregorio Fault located approximately six miles to the southwest. The San Andreas Fault is located approximately seven miles to the northeast. There will be a less than significant risk from surface fault rupture in the project area.

ii) The project sites are in an area that is subject to potential strong ground shaking from the nearby San Gregorio and the San Andreas Faults. The California Geological Survey (Petersen 1996) has determined that the San Andreas Fault in this region (Santa Cruz segment) is capable of generating an earthquake with a maximum moment magnitude of 7.0 and the San Gregorio could produce an earthquake with a maximum moment magnitude of 7.3. The expected shaking motion for this event ranges from 0.48 (firm

rock) to 0.49 (alluvium) peak ground acceleration (California Geological Survey 2003). Implementation of Mitigation Measure **GEO-1** below will reduce this impact to less than significant.

MITIGATION MEASURE GEO-1: SEISMIC BUILDING REQUIREMENTS
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| <ul style="list-style-type: none">• The proposed water tank must conform to earthquake design requirements. Tank and foundation design will follow the applicable regulations and design practices of the American Water Works Association Design Standards.• Any new equipment installed as part of the water system treatment upgrades would be secured to the walls and/or floor in the existing water treatment building to prevent damage in the event of a large earthquake.• State Park staff would inspect the water supply system for damage as soon as feasible after a large earthquake. |
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iii) Seismic-induced ground failure, such as liquefaction, usually occurs in unconsolidated granular soils that are water saturated. During seismic-induced ground shaking, pore water pressure can increase in loose soils, causing the soils to change from a solid to a liquid state (liquefaction). In the project areas, locations along creeks with underlying alluvial material could be subject to liquefaction. However, most project work does not occur in areas that appear to be susceptible, therefore, there will be a less than significant risk from liquefaction.

iv) Landslides are common in the Park and some mapped landslides are present within the project area (see Environmental Setting section above). Strong earthquakes may trigger landslides, especially if the soils are saturated. Drainage improvements and drainage system maintenance, especially along roads, can help to prevent large landslides or debris flows. Refer to discussion section c) below. Less than significant impact.

- b) A temporary increase in erosion may occur during the phases of this project during grading for the water tank foundation and equipment staging areas, trenching for utility lines and new valves, any needed improvement of tank access roads, and any other ground disturbing activities. Implementation of Project Condition **GEO-1** below will reduce soil erosion or loss of topsoil by the proposed project to a less than significant level.

PROJECT CONDITION GEO-1: EROSION CONTROL

- Best Management Practices (BMPs) will be used in all areas to control soil and surface water runoff during excavation, grading, and trenching. Whenever possible grading and excavation activities will not be planned during the rainy season (October 15 to April 15), but if storms are anticipated during construction or if construction must occur during the wet season, “winterizing” will occur, including the covering (tarping) of any stockpiled soils and the use of temporary erosion control methods to protect disturbed soil. Temporary erosion control measures (BMPs) will be used during all soil disturbing activities and until all disturbed soil has been stabilized (re-compacted, re-vegetated, etc.) These BMPs will include, but not be limited to, the use of silt fences, straw bales, or straw or rice coir rolls, to prevent soil loss and siltation into nearby water bodies.
- Permanent BMPs for erosion control will consist of properly compacting disturbed areas and re-vegetation of appropriate disturbed soil areas with native species using seed collected locally. Final design plans will include BMP measures to be incorporated into the project.

- c) Portions of this project are located within geologic units or soils that are known to be unstable, based on available data. Landslides have been mapped in the vicinity of the water treatment plant, the Sky Meadow residence area, and Park Headquarters. These areas are discussed in the Environmental Setting section above. These areas may be prone to future slope failures, especially during high intensity rainfall events. The area most susceptible to damage would be the water treatment plant area. It has remained stable since the 1980-81 debris flow that destroyed the chlorinator facility. This is an existing condition, not a new condition due to this project. Proper grading and channeling of water from the upslope road and maintenance of drainage systems should help to prevent any future debris flows.
- d) The soils mapped by the US Department of Agriculture (1980) in the project area are rated as non-plastic to slightly plastic. Based on this information, the soils will have no to low shrink-swell potential. Therefore, there is a less than significant impact potential for expansive soils for the project sites.
- e) The project does not involve the installation of a septic system or leach field. Therefore, there is no impact due to this project.
- f) No known unique paleontological resource exists within the project site. The geologic formation present does not include any fossils. Therefore, there is no impact.

VII. HAZARDS AND HAZARDOUS MATERIALS.

ENVIRONMENTAL SETTING

Hazardous Materials

The Park and project area are located in an area that has had no known industrial activity that would generate hazardous waste or materials. Most of the area was logged, with the exception of the Park Headquarters area. Small amounts of potentially hazardous chemicals may be present at the water treatment plant, but they should be properly stored and do not pose any significant threat. Buildings with potentially hazardous materials have not been identified in this project.

Fire Hazards

Limited areas within the Park are designated as “generalized critical fire hazard areas” by the County of Santa Cruz in conjunction with the California Department of Forestry and Fire Protection, including at least one area within 1,000 meters of project work (County of Santa Cruz 2004).

Airports and Schools

The project site is not located within an airport land use zone, or within two miles of an airport. There are no known private airstrips in the vicinity of the Park. The nearest school is located approximately six miles away in Boulder Creek. The closest major city is Santa Cruz, located approximately 25 miles to the southwest.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials, substances, or waste into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites, compiled pursuant to Government Code §65962.5, and, as a result, create a significant hazard to the public or environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport? If so, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be located in the vicinity of a private airstrip? If so, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Expose people or structures to a significant risk of loss, injury, or death from wildland fires, including areas where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

DISCUSSION

- a,b) Construction activities will require the use of certain potentially hazardous materials, such as fuels, oils, or other fluids associated with the operation and maintenance of vehicles and equipment. These materials generally are contained within vessels engineered for safe storage. Large quantities of these materials will not be stored at or transported to the construction site. Spills, upsets, or other construction-related accidents could result in a release of fuel or other hazardous substances into the environment. Additionally, surface preparation work of tanks may have the potential to release hazardous dust. The following project conditions would reduce the potential for adverse impacts from these factors to a less than significant level.

PROJECT CONDITION HAZMAT-1: POLLUTION PREVENTION

- All equipment will be inspected by the contractor for leaks immediately prior to the start of construction, and regularly inspected thereafter until equipment is removed from Park premises.
- The contractor(s) will prepare an emergency Water Pollution Control Plan prior to the start of construction and maintain a spill kit on-site throughout the life of the project. This plan will include a map that delineates construction staging areas, where refueling, lubrication, and maintenance of equipment may occur. Areas designated for refueling, lubrication, and maintenance of equipment shall be at least 50 feet from any creeks. In the event of any spill or release of any chemical in any physical form at the project site or within the boundaries of Big Basin Redwoods State Park during construction, the contractor would immediately notify the appropriate DPR staff (e.g., project manager, supervisor, or State Representative).
- Equipment will be cleaned and repaired (other than emergency repairs) outside the Park boundaries. All contaminated water, sludge, spill residue, or other hazardous compounds will be disposed of outside Park boundaries, at a lawfully permitted or authorized destination.
- Dust generated by any surface preparation work will be contained indoors. Workers will use appropriate personal protection gear compliant with Cal/OSHA standards.

- c) As noted in the Environmental Setting, there are no schools in the general vicinity of the project. Therefore, there will be no impact from this project.
- d) The project is not located on a site that is included on a list of hazardous materials sites, compiled pursuant to Government Code §65962.5. No impact.
- e,f) Big Basin Redwoods SP is not located within an airport land use plan, within two miles of a

public airport, or in the vicinity of a private air strip. Therefore, no impact would occur as a result of this project.

- g) The project does not involve changing, closing, or blocking any transportation routes. No impact.
- h) The project site is located adjacent to grassy and wooded areas that may pose a fire hazard. Annual grasses can become flammable during the dry season (June-October). Heavy equipment, if used on or driven across any flammable areas, may cause a fire due to improper exhaust systems or by the creation of sparks from the friction of metal parts on rock or other hard surfaces. Project work may involve the use of volatile, flammable substances. Improper use, storage, or disposal of these materials could result in a fire. Implementation of Project Condition **HAZMAT-2** below would reduce the potential for adverse impacts from this project to a less than significant level.

PROJECT CONDITION HAZMAT-2
A Worker Safety Plan will be developed and reviewed by all project staff prior to the start of any work. Job site characteristics to reduce the potential for fire would be included such as, but not limited to, those discussed below: <ul style="list-style-type: none">• Spark arrestors or turbo-charging (which eliminates sparks in exhaust) and fire extinguishers would be required for all heavy equipment.• Construction crews would be required to park vehicles away from flammable material, such as dry grass and brush. At the end of each workday, heavy equipment would be parked over mineral soil, asphalt, or concrete to reduce the chance of fire.• The Worker Safety Plan will provide guidelines for the proper use, storage, and disposal of any flammable materials used during the project work.

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VIII. HYDROLOGY AND WATER QUALITY.

ENVIRONMENTAL SETTING

This section describes the Waddell Creek watershed where the proposed project site occurs, and addresses the hydrology of surface and ground waters that could be affected by project implementation. Issues related to water supply and quality are analyzed as is the threat of hazards, such as flooding and mudslides.

Watershed

Big Basin Redwoods State Park is located within the Central Coast Hydrologic Basin, as defined by the Department of Water Resources (DWR 2006) and in the Big Basin Hydrologic unit, as designated by Central Coast Regional Water Quality Control Board (CCRWWCB 1994). The largest watershed within the Park is Waddell Creek. The Resource Inventory for Big Basin Redwoods State Park (DPR 1998) estimates that 13,400 acres of the 16,700-acre Waddell Creek watershed occur within the State Park boundaries. The Water System Improvements Project site is located entirely within the Waddell Creek watershed.

The project site is located in the vicinity of three of Waddell Creek's tributaries: Opal, Sempervirens, and Union Creeks. Project work would occur at several locations in this vicinity.

Surface Water

Mean discharge data from Waddell Creek is not accurately known due to the absence of regular and long-term flow data. However, most of the annual runoff occurs between December and May, with flows changing rapidly in response to storm events. During the dry season (May to October), the monthly discharge drops to a fraction of the wet season flows. The rock units within the watershed have little long-term storage capacity and do not supply much input in the dry season. There is evidence of an approximate three percent decrease in base flow discharge for Waddell Creek since the 1930s. This is attributed to the re-growth of vegetation following the extensive logging and uncontrolled fires that occurred prior to the 1930s. Eventually, Waddell Creek may become intermittent during the dry season (DPR 1998).

Sempervirens Creek and Union Creek, its first major tributary downstream of Sempervirens Reservoir, are both permanent streams for several hundred yards. Surface waters from Sempervirens Creek supply water to the largest developed areas of the Park unit. The creek is dammed above the confluence with Union Creek to form Sempervirens Reservoir. Sempervirens Creek is the major tributary to Blooms Creek, which is one of the two major tributaries to East Waddell Creek.

Opal Creek is a 4.5-mile-long tributary to East Waddell Creek, which is located in the area of the Park that receives the most intense public use. Opal Creek's headwaters and tributaries are steep slopes of redwood forest similar to other watershed areas in the Park unit. However, its lower 2.5 miles are of a low gradient (averaging about 60 feet/mile with some portions almost flat). Opal Creek and Blooms Creek are East Waddell Creek's two major tributaries.

Groundwater

The predominate rock formations in the Park are sandstone and mudstone, which are a poor source for groundwater. Water drains quickly through the fractures in these rocks, flows into the dense stream network, and then eventually flows back into the ocean. As much as half the precipitation returns to the ocean via surface runoff. Several springs exist within Big Basin

Redwoods State Park and some have been developed for Park use. Within the general project area, Pine Mountain Spring was once developed to supply water to the wastewater plant facilities before Sempervirens Reservoir was constructed (DPR 1998).

Flooding

The narrow floodplains along Waddell Creek are subject to seasonal flooding. According to ESRI-FEMA (2005), Waddell Creek is within a 100-year flood zone, but the project area is not shown as occurring within the 100-year zone. There are no developed areas in the watershed that are subject to severe flooding, however within the general project area, a “100-year storm” in 1983 (El Niño storm) washed out the Sempervirens Dam spillway and triggered a landslide that destroyed the nearby water treatment plant. Other structures previously placed in the Waddell Creek watershed have been destroyed, including a dam built in 1954, and a sawmill built in the mid-1940s by the Big Creek Timber Company (DPR 1998).

Some culverts under the road adjacent to the lower reach of Waddell Creek are undersized to carry the high flows, sediment load, and debris generated during large storms. As a result debris and sediment accumulate on the upstream side of the culvert and raise the streambed elevation. This in turn causes the road to washout (DPR 1998).

Water Quality

Surface water quality varies among different sources, but is generally good within Big Basin Redwoods State Park (DPR 1998). The water supply from Sempervirens Reservoir is periodically tested by Park staff and is of good quality. Routine testing of surface water in East Waddell Creek (downstream of both the project area and the Park’s wastewater treatment plant) has shown elevated concentrations of bacteria (fecal coliform) that decrease downstream from the plant and the campground (DPR 1998). Bacterial concentration in the undeveloped West Waddell also decreases towards the mouth. This may indicate that downstream the creek is being charged with groundwater, thus diluting the concentration of bacteria (DPR 1998). Downstream, levels may increase again before the marsh. The county limit of 200 for total coliform has been exceeded at times at Waddell Creek Beach (DPR 1998).

The Central Coast Regional Water Quality Control Board (CCRWQCB) regulates water quality in the region and provides water quality standards and management criteria as required by the Clean Water Act. These standards and criteria are presented in the 1994 Water Quality Control Plan (Basin Plan) for the Central Coast Basin (CCRWQCB 1994). The Basin Plan identifies the beneficial uses and water quality objectives for the Central Coast region. The surface water bodies adjacent to the project site include Sempervirens Creek, Opal Creek, and Union Creek. Beneficial uses for these creeks are listed in the following table:

Beneficial Use	Sempervirens Creek	Opal Creek	Union Creek
Municipal and Domestic Supply	X	X	X
Agricultural Supply			
Groundwater Recharge	X	X	
Water Contact Recreation	X	X	X
Non-Contact Water Recreation	X	X	X
Wildlife Habitat	X	X	X
Cold Fresh Water Habitat	X	X	X

Migration of Aquatic Organisms	X		
Spawning, Reproduction and/or Early Development for Fish	X		
Preservation of Biological Habitats of Special Significance	X	X	X
Rare, Threatened, and Endangered Species			
Estuarine Habitat			
Freshwater Replenishment			
Commercial and Sport Fishing			

East Waddell Creek has been identified as having elevated nutrients levels. The Basin Plan (Chapter 4, section VI.B.1) states “The Department of Parks and Recreation must correct wastewater system deficiencies in order to protect public health and the beneficial uses of Waddell Creek and its tributaries” (CCRWQCB 1994). Currently, upgrades to the treatment plant and sewage lines are in progress to address this problem.

Water Supply

Big Basin Redwoods State Park is located within the Big Basin Hydrologic Unit of the Central Coast Hydrologic Region (CCWQCD 1994). The major portion of water supplied to the Park comes from Sempervirens Creek, a tributary to Waddell Creek. About 78 acre-feet of water is stored in Sempervirens Reservoir, a four-acre impoundment behind an earthen dam on Sempervirens Creek (DPR 1998). In addition to flows from Sempervirens Creek, a significant fraction of the water yield to the reservoir is from subsurface inflow (groundwater) and possibly some input from springs in the Santa Margarita Sandstone. Water is piped from the reservoir to a nearby treatment plant and then supplied to the Park facilities. The quantity of water in storage is rarely required to meet demand and is usually adequate to meet withdrawals to the treatment plant (DPR 1998).

Park facilities and the employee residence at the Rancho del Oso subunit of the Park are supplied water from a developed spring. The Sempervirens Nature Center receives water from a shallow well.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

or siltation?

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| d) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| f) Substantially degrade water quality? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| g) Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Place structures that would impede or redirect flood flows within a 100-year flood hazard area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| i) Expose people or structures to a significant risk of loss, injury, or death from flooding, including flooding resulting from the failure of a levee or dam? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| j) Result in inundation by seiche, tsunami, or mudflow? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Discussion

- a) During excavation or trenching operations associated with project implementation, a release of sediment to nearby creeks, and thereby to Waddell Creek and the Pacific Ocean, could occur. Other impacts to water quality could result from releases of fuels or other fluids from vehicles and equipment during construction activities. If appropriate measures are not taken, these activities could result in a violation of water quality standards and waste discharge requirements. Project Condition **HYDRO-1** below will control releases of pollutants in storm (or other) water runoff. A plan to prevent, contain, and clean up any spills (Water Pollution Control Plan) will be prepared and implemented to prevent impacts to water quality. Implementation of Project Condition **HYDRO-1** below will ensure water quality impacts are less than significant.

PROJECT CONDITION HYDRO-1: WATER QUALITY
<ul style="list-style-type: none"> • Implementation of Project Condition GEO-1 will provide Best Management Practices (BMPs) to control erosion and runoff during project construction and post-construction into nearby creeks. • Implementation of Project Condition HAZMAT-1 will reduce impacts to water quality from possible pollutants (fuels and other vehicle fluids released from vehicles and heavy equipment during construction).

- b) The project will not result in an increase in water usage because visitor and resident numbers will remain at current levels. Therefore, groundwater depletion will not occur as a result of project implementation. No impact.

- c) No existing drainages will be altered by this project. Any siltation impacts will be less than significant. Post-construction BMPs to reduce sediment-laden runoff are specified in Project Condition **GEO-1**.
- d) The drainage pattern will not be altered in a manner that would significantly increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding. No impact from this project.
- e) This project will not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. No substantial additional sources of polluted runoff are expected from this project, provided soil erosion BMPs are followed during construction, and a Water Pollution Control Plan is in place for any vehicle or equipment fluid spills. Implementation of Project Condition **HYDRO-1** will reduce this impact to less than significant.
- f) This project would have the potential to substantially degrade water quality if BMPs to control soil erosion and runoff or release of vehicle or equipment fluids are not in place during construction. However, with implementation of Project Condition **HYDRO-1** listed above, no substantial degradation of water quality will occur.
- g) This project is not located within a FEMA-designated floodplain area. Therefore, there is no impact from this project.
- h) This project will not place structures that could impede or redirect flood flows within any FEMA-designated 100-year flood plain. Therefore, there is no impact from this project.
- i) The project would not expose people or structures to an increased significant risk of loss, injury, or death from flooding, including flooding resulting from the failure of a levee or dam. Improving the water system is not expected to increase visitor use of the area above current levels or change existing conditions of the dam and reservoir. Therefore, there is no impact from this project.
- j) The project is not located in an area that would be severely inundated by either a seiche or a tsunami. A tsunami predominately occurs in oceans due to displacement of seawater by earthquakes, landslides, or volcanic activity and a seiche is a standing wave that occurs on lakes or enclosed bays, neither of which occur in the project area or would affect the project area.

The Park is subject to landslides and mud or debris flows. A recent storm event (April 15-16, 2006) caused a road failure that exposed existing water and sewage lines; continued slope failure could cause a breakage. The existing water treatment facility was damaged in a debris flow in the winter of 1981-82 (McJunkin 1983). This project will create no additional risk of inundation by landslide or debris flow than already exists at the Park. There is a less than significant risk due to this project.

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IX. LAND USE AND PLANNING.

ENVIRONMENTAL SETTING

The project site is designated for Parks and Recreation (1994 Santa Cruz County General Plan) and zoned Special Use (Santa Cruz County Zoning Ordinance). The Parks, Recreation, and Open Space designation provides for “low intensity uses which are compatible with the scenic values and natural setting of the county for open space lands which are not developable; and allow commercial recreation, County, State and Federal parks, preserves, and biotic research stations, local parks and passive open space uses for park lands which are developable.” (County of Santa Cruz 1994, 7.1.3)

Relevant portions from the Santa Cruz County 1994 General Plan and Local Coastal Program also include:

- Section 7.8.15 f.: “Request the State Parks Department to give highest possible priority to continuing and substantially improving maintenance and management programs for its existing state park facilities.”

Big Basin Redwoods SP either shares borders or is in close proximity to Castle Rock SP, Año Nuevo State Reserve, Año Nuevo SP, Butano SP, and Portola Redwoods SP, along with several other recreational and open space lands such as Pescadero Creek County Park, and Sempervirens Fund and Peninsula Open Space Trust properties. Land use patterns in the Santa Cruz Mountains have not changed dramatically in the recent past. Agriculture, parks and open space, and private homes are the major land uses in the area. Private ownership patterns around the Park generally consist of relatively large or very small parcels of land. Lying between the large ownership parcels are subdivided areas with small lots that either contain homes and cabins or are undeveloped. Most of the area between the state parks surrounding Big Basin Redwoods SP remains undeveloped. Significant land is owned by timber companies.

Historic use of the land presently occupied by Big Basin Redwoods SP has included hunting, fishing, shellfish collection, logging, agriculture, lumber milling, and tanning. Present uses of this land include resource preservation, watershed conservation, wildlife sanctuary, and educational and recreation activities. The existing land use of the Park blends with the relatively undeveloped nature of the Santa Cruz Mountains. Steep and rugged topography and sensitive resources have limited land developed for public use to a small percentage of the Park's 18,000 acres. Proximity or distance from transportation routes, topography, and the location of prime natural and cultural resources have contributed to the current land use patterns within the Park.

Headquarters Area Land Use Patterns

The Headquarters area is located in the eastern portion of the Park and is accessed by State Route 236. This area was part of the original 3,800 acre acquisition and, due to relatively flat terrain and ease of access and location within old growth redwoods, it contains the majority of recreational opportunities and facilities in the Park. Land use in the Headquarters area includes picnicking, camping, hiking, horseback riding, biking, auto touring, nature study, staff housing, and administrative, interpretive, and maintenance facilities.

The Rancho del Oso/Waddell Beach area (approximately 460 acres) is located in the western portion of the Park along the coast and is accessed from State Route 1. This area is distant from the project site.

Backcountry/Wilderness Land Use Patterns

The vast majority of the Park is undeveloped backcountry (approximately 15,000 acres) that offers limited access and steep topography, and contains sections of old and second-growth redwood and knobcone pine forests. Fire and maintenance roads, trails, bridges, interpretive signage and overlooks are the only improvements in backcountry locations. Existing land uses within backcountry/wilderness areas include hiking, horseback riding, biking (except in the wilderness), nature study, interpretive programs, primitive camping, and orienteering. (DPR 2006b)

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with the applicable land use plan, policy, or regulation of any agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The proposed project will not physically divide any community. No impact.
- b) The proposed project is consistent with 1994 General Plan and Local Coastal Program, Santa Cruz County, including 7.1.3 and 7.8.15 f. No impact.
- c) There is no habitat conservation plan or natural community conservation plan at the project area. No impact.

X. MINERAL RESOURCES.

ENVIRONMENTAL SETTING

Big Basin Redwoods SP is located 25 miles northeast of Santa Cruz, near the small town of Boulder Creek. Information on the mineral resources of Santa Cruz County is summarized below.

State Mineral Survey

The Santa Cruz County Mineral Survey states that in Santa Cruz County, the variety of commercial minerals is small and practically confined to structural materials, bituminous rock, cement, clay, lime and limestone, sand, gravel, and crushed rock. A number of other minerals are known to occur in the county, but they are of minor importance at their present stage of development. Among these are coal, gold, granite, iron, mineral water, and petroleum. Still other varieties mainly of mineralogical interest are cinnabar, graphite, gypsum, melanterite, and talc. Magnetite, chromite, ilmenite, garnet, olivine, zircon, quartz, and platinum are constituents of some of the beach sands. (Laizure 1926.)

Santa Cruz County Resource Conservation District, Long Range Plan 2000-2010

The Santa Cruz County Resource Conservation District Long Range Plan 2000-2010 identifies only a few mineral resources in the County. None are identified as being within the boundaries of Big Basin Redwoods State Park. The major mineral resources of economic value in Santa Cruz County consist of structural and industrial materials, namely sand, gravel, limestone (with siliceous shale), and crushed rock (mainly granite).

At present there are quarrying operations extracting each of the above minerals, and there are also known deposits of each that have not yet been mined. Most mined and potentially extractable mineral deposits are located in the northern half of the County; the exceptions are two locations in mid-County and one in South County. Current mineral resource extraction operations consist of four sand quarries, three aggregate rock quarries, two gravel quarries, and one limestone and one shale quarry. The projected life for these operations varies from 10-15 years to 150 years.

Several abandoned quarries exist within the County. These quarries are currently under consideration for alternative uses. Some petroleum (oil, gas) resources also may exist in the County but are not currently exploited. (Santa Cruz County 2002.)

The mineral resources potential for Big Basin Redwoods State Park can be considered low. In accordance with Public Resource Code § 5001.65, commercial exploitation of resources in the units of the State Park system is prohibited.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Result in the loss of availability of a known mineral resource that is or would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

a,b) No significant mineral resources have been identified within the boundaries of Big Basin Redwoods State Park. Therefore, the project would not result in the loss of availability of a known mineral resource nor a locally important mineral resource recovery site. No impact.

XI. NOISE.

ENVIRONMENTAL SETTING

Big Basin Redwoods SP is located in a rural, sparsely populated area approximately 25 miles northeast of the city of Santa Cruz, near the small town of Boulder Creek. The Park is in two county jurisdictions: the southern portion of the Park is in Santa Cruz County and a small northern portion is in San Mateo County. The proposed project is located entirely within the Santa Cruz County jurisdictional area.

Visitor use activities and vehicle traffic are the primary sources of noise in Big Basin Redwoods SP. Noise generated from visitor use (an individual alone or a group of people engaged in a gathering, game, or other amusement activity) is primarily concentrated in campgrounds and day use areas and along trails. The primary source of vehicle traffic noise is State Route 236, a two-lane road that provides Park access from the Saratoga and Santa Cruz areas.

Noise is defined as unwanted sound and is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, the federal government, the State of California, and many local governments have established criteria to protect public health and safety and to prevent disruption of certain activities.

Noise is commonly described in “Ldn,” which expresses average sound level over a 24-hour period in decibels (dB), the standard measure of pressure exerted by sound. Ldn includes a 10 dB penalty for sounds between 10 p.m. and 7 a.m., when background noise is lower and people are most sensitive to noise. Because decibels are logarithmic units of measure, a change of 3 decibels is hardly noticeable, while a change of 5 decibels is quite noticeable and an increase of 10 decibels is perceived as a doubling of the noise level. A change from 50dB to 60dB increases the percentage of the population that is highly annoyed at the noise source by about 7 percent, while an increase from 50 dB to 70 dB increases the annoyed population by about 25 percent. Sounds as faint as 10 decibels are barely audible, while noise over 120 decibels can be painful or damaging to hearing.

Construction Equipment Noise at 50 Feet

Equipment	Noise Level at 50 Feet
Earthmoving	dBA
Front Loaders	75-79
Backhoes	75-85
Dozers	75-80
Tractors	75-80
Graders	75-85
Pavers	80-89
Trucks	75-82
Material handling	
Concrete Mixers	75-85
Crane	75-83
Concrete Crushers	75-85
Stationary	
Pumps	75-76
Generator	75-78
Compressors	75-81
Impact	
Jack Hammers	75-88
Pneumatic Tools	80-86
Other	
Saws	75-78
Vibrators	75-76

Source: U.S. EPA 1971

Noise is also described using “dBA”, which is the decibel level adjusted to take into account sensitivity levels to noises at differing frequencies.

Work on this project will occur in various locations throughout the Park including the Outer Picnic area, the Park Headquarters and Panoramic Storage Tank areas along State Route 236, the lower Park staff residence area along Sky Meadows Road and the upper Park staff

residence area along Lodge Road. At some sites, the distance from day staff residences and visitor day use areas is less than 50 feet. However, no private residences are located in the project area and all construction activities associated with the project would occur within the Park boundaries.

This project is consistent with Santa Cruz County 1994 General Plan objective to “Prevent new noise sources from increasing the existing noise levels above acceptable standards....” (County of Santa Cruz 1994, Objective 6.9a)

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Generate or expose people to noise levels in excess of standards established in a local general plan or noise ordinance, or in other applicable local, state, or federal standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generate or expose people to excessive groundborne vibrations or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Create a substantial permanent increase in ambient noise levels in the vicinity of the project (above levels without the project)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a substantial temporary or periodic increase in ambient noise levels in the vicinity of the project, in excess of noise levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport? If so, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be in the vicinity of a private airstrip? If so, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) No noise ordinances are applicable to this area and there are no noise-sensitive land uses located in the vicinity of the project area that will be affected substantially by the proposed construction-related activities. The project site is not located near sensitive land uses or receptors and there will be no increase in noise levels once construction is complete, therefore the project is consistent with the noise objectives of the Santa Cruz County 1994 General Plan.

Although there are no human sensitive land uses or receptors, specific construction activities being performed would result in short-term (temporary) increases in ambient noise levels and could result in speech interference near the project site and a potential increase in annoyance to Park visitors. However, visitation to the Park is a discretionary act and Park visitors will have the option of visiting other day use areas within the Park during

construction. Integration of the following Project Condition **NOISE-1** into the project will reduce any potential construction noise impacts to a less than significant level.

PROJECT CONDITION NOISE-1

- | |
|--|
| <ul style="list-style-type: none"> • Construction activities will generally be limited to the hours between 7 a.m. and 6 p.m., daily. • Internal combustion engines used for any purpose at the job site will be equipped with an exhaust muffler of a type recommended by the manufacturer. Equipment and trucks used for construction will utilize the best available noise control techniques (e.g., engine enclosures, acoustically attenuating shields or shrouds, intake silencers, ducts, etc.) whenever feasible and necessary. • Stationary noise sources and staging areas will be located as far from Park visitors as possible. If they must be located near visitors, stationary noise sources will be muffled to the extent feasible and/or, where practicable, located within temporary noise reducing enclosures. |
|--|

- b) Construction activity will not involve the use of explosives, pile driving, or other intensive construction techniques that could generate significant groundborne vibrations or noise levels. However, minor vibration immediately adjacent to excavating equipment will occur on a short-term basis during construction. Exposure of people to excessive groundborne vibration or noise generated by the project will have a less than significant impact.
- c) Project-related noise will only occur during actual construction. Once construction is completed, all noise-generating equipment will be removed from the site. Furthermore, the project will not create any source that will contribute to a substantial permanent increase in ambient noise levels in the vicinity of the project. No impact.
- d) There will be periodic use of equipment during the complete construction period. Construction noise levels at or near the project area will fluctuate, depending on the type and number of construction pieces of equipment operating at any given time. The typical type of equipment for this type of project would be work trucks; heavy equipment including rubber tire-type backhoes, excavator with backhoe attachment, skip loader with scraper, trenching machine, vibrating drum roller, gravel/sand delivery dump trucks, small hydraulic boom crane (to erect water tanks), and concrete delivery trucks; and mechanical equipment including portable electrical generator, hand-operated soil compactors, portable air compressor, hydrostatic pipe pressure test machine, chainsaw, and an asphalt cutting saw. Depending upon the specific construction activities being performed, short-term increases in ambient noise levels could result in speech interference at the work sites and a potential increase in annoyance to visitors and staff. Therefore, construction-generated noise would be considered to have a potentially significant short-term impact to these people. Implementation of Project Condition **NOISE-1** above will reduce any potential impacts to a less than significant level.
- e, f) Big Basin Redwoods SP is not located within an airport land use plan, within two miles of a public airport, or in the vicinity of a private air strip. Therefore, no impact would occur as a result of this project.

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XII. POPULATION AND HOUSING.

ENVIRONMENTAL SETTING

The Water System Improvements project site is located 25 miles northeast of Santa Cruz, near the small town of Boulder Creek in Big Basin Redwoods State Park. The Park is in two county jurisdictions: the southern portion of the Park is in Santa Cruz County and a small northern portion is in San Mateo County. The proposed project is located entirely within Santa Cruz County. Housing within the Park boundaries is limited and restricted to Park employees. It comprises approximately 19 structures and eight trailer locations, the majority of which is located at the lower residence area along Sky Meadows Road and the upper residence area along Lodge Road. These are single-family units and offer private bathrooms, shower and laundry facilities. Cabin units at Jay Camp offer bunkhouse style accommodations for seasonal employees. There is no indoor plumbing within these cabins and residents utilize the nearby public restroom and shower facilities. Employee residences are also located at Rancho del Oso, the Headquarters area, and the maintenance area (DPR 2006b). The permanent population of the Park is relatively static, based on DPR staffing requirements, and no significant growth is anticipated in the foreseeable future.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

a, b, c) Work proposed by this project would consist primarily of repair and rehabilitation of existing features, and adding new fire suppression waterlines and two fire hydrants to protect existing staff residences at the lower residence area along Sky Meadows Road, and the upper residence area along Lodge Road. The project would not have a housing component and all work would take place within the confines of the Park boundaries. It would neither modify nor displace any existing housing and would displace no one, either temporarily or permanently. The project is not expected to increase visitation or employment at the Park. Therefore, it would have no impact on population growth or housing in the area.

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XIII. PUBLIC SERVICES.

ENVIRONMENTAL SETTING

California State Park rangers are POST-certified peace officers and provide law enforcement in the Park. If necessary, Santa Cruz County Sheriff's Deputies and the California Highway Patrol (CHP) are available for back up. CHP also patrols State Route 236.

Fire protection is provided by the California Department of Forestry and Fire Protection (CDF) under contract with Santa Cruz County. The San Mateo-Santa Cruz unit of CDF is located at 6059 Highway 9 in Felton, and maintains the LaHonda station at 8945 Highway 84 in LaHonda. The Boulder Creek Fire Protection District, 13230 Central Avenue, Boulder Creek, has two structural engines and one wildland engine (CDF 2004). CDF also maintains a seasonal station at 16115 Jamison Creek Road, Boulder Creek, approximately five miles south of Park Headquarters off SR 236. Initial emergency medical response to the Park is from Boulder Creek Fire Protection District. (Williams 2006)

Limited areas within the Park are designated as "generalized critical fire hazard areas" by the County of Santa Cruz in conjunction with CDF, including at least one area within 1,000 meters of project work (County of Santa Cruz 2004). CDF has mapped areas within the Park as having either "high" or "very high" levels of vegetation fuel loading (CDF 2004).

There are no schools located near the project site.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Result in significant environmental impacts from construction associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) None of the project elements are expected to contribute to any increase in visitation to the Park and the level of required services is expected to remain static. However, use of construction equipment around flammable annual grasses in the staging and construction area(s) present an increased fire risk that could result in additional demands on fire response teams. Any impact on service would be temporary and nothing in the project

scope would contribute to the need for an increase in the level of public services. Conditions of the project outlined in the Hazards section (Chapter III, Section VII, Discussion h) will ensure impacts from the project are less than significant. The new use of the Panoramic Tank for storage of water for emergency fire suppression and the installation of a new fire suppression line and hydrants at lower Sky Meadow residence area will contribute to increase fire suppression capacity at the Park. The project would have a less than significant impact on fire protection.

As noted in the Environmental Setting above, Big Basin Redwoods SP maintains ranger police protection year-round. No additional demands on law enforcement are expected as a result of this project.

No schools exist within or adjacent to the project area. No changes would occur that would effect existing schools or require additional schools or school personnel. No impact.

No public use areas would be closed as a result of this project, although access to the immediate areas under construction may be restricted during certain phases of the project. However, the project area is only a small portion of the Park, with multiple alternatives for visitors unable to visit the area.

No other parks in surrounding areas should show any increase in use due to this project. No adverse impact would occur at Big Basin Redwoods SP or any other public facilities as a result of this project.

The project, as a whole, or in part, would have a less than significant effect on any public services.

XIV. RECREATION.

ENVIRONMENTAL SETTING

Big Basin Redwoods State Park (SP) is located 25 miles northwest of Santa Cruz and about 65 miles south of San Francisco. Situated in the Santa Cruz Mountains, a prominent mountain range running in a northwest direction from Watsonville to South San Francisco, the Park is within 60 miles of major metropolitan centers in the San Francisco Bay Area and Santa Clara Valley. The Santa Cruz Mountain region includes many recreation and open space providers such as California State Parks, Santa Cruz and San Mateo County Parks, the Midpeninsula Regional Open Space District, the California Department of Fish and Game, the Santa Cruz Water Department, University of California, the Sempervirens Fund, and the Peninsula Open Space Trust. In addition to public open space the region contains small towns, rural housing, small business, timber companies, and private recreation providers.

The Park consists of over 18,000 acres and contains two distinct areas, lowlands (near the coast) and uplands. The project site is located in the latter. In the Headquarters area, near where some project work will occur, campgrounds, interpretive facilities, picnic areas, stores, and trails bustle with visitor activity, while Park rangers, interpreters, docents, administrators, and maintenance staff serve visitor needs. The backcountry of the uplands offers quiet solitude in the large evergreen trees and steep canyon slopes, where the terrain transports water with varying intensities. With over 83 miles of trails and fire roads, Big Basin Redwoods SP offers a wide range of trail activities for hikers, bikers, and equestrians.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a,b) No additional structures or attractions would be added that would increase visitation or demands to this or any other park or recreational facility in the area. The project would not include the construction of new recreational facilities or expansion of existing ones. No impact.

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XV. TRANSPORTATION/TRAFFIC.

ENVIRONMENTAL SETTING

State Route 236 (SR 236) is the primary public vehicular access route to the inland mountain portion of the Park, where the project site is located. SR 236 is accessed from Highway 9 at Boulder Creek (southern route) or at Waterman Gap (northern route) creating a loop through the eastern portion of the Park.

China Grade Road connects the northern and southern routes of SR 236 and is an additional access route into the eastern portion of the Park. Primarily used by local residents, China Grade is not considered a major access for Park visitors. Lodge Road, which connects to the southern route of SR 236, provides additional access to the eastern portion of the Park and is primarily used by Park staff to access Park residences and maintenance facilities.

The Santa Cruz Metropolitan Transit District (SCMTD) provides bus service to Park Headquarters twice a day on weekends. Bicycle transport accommodations are currently available on SCMTD buses.

Alternative methods of accessing the Park are by horseback, hiking, and biking. Day hikers, overnight backpackers, and equestrians can access the Park via the Skyline to the Sea Trail, which extends 26 miles from Saratoga Gap to Waddell Beach and traverses the ridges and valleys of Big Basin Redwoods SP. Additional access for hikers and equestrians is available on the Basin Trail easement, connecting Portola Redwoods SP and Big Basin Redwoods SP, and the Butano fire road easement, connecting Butano SP and Big Basin Redwoods SP.

Visitor circulation within the mountainous portion of the Park revolves primarily around the visitor facilities and old growth redwood forest located in the Headquarters area. Day use visitors to the Headquarters area park their cars in designated day use parking or along the North Escape and Gazos Creek roads while picnicking or day hiking. The majority of visitors day hiking in the Headquarters area venture no more than 1-1 ½ miles from day use and camping facilities, while only a small percentage hike greater distances to backcountry and beach locations in the Park.

Overnight campers park at their designated campsites and generally use trails and trail connectors to access activities and facilities located in the Headquarters area. Campers may also use their vehicles to drive from campsites to the campfire center and to day use facilities located in the Headquarters area. Backpackers can park at Jay Trail Camp and hike into the backcountry and wilderness areas of the Park for overnight trips. (DPR 2006b)

2004 Traffic Volumes on State Route 236, Selected Locations						
Location & Postmile	Annual Average Daily Traffic, Southbound (SB)	Annual Average Daily Traffic, Northbound (NB)	Peak-Hour Traffic, SB	Peak-Hour Traffic, NB	Peak-Month Traffic, Southbound	Peak-Month Traffic, Northbound
Southern Entrance to Park, 8.74	460	460	50	50	560	460
Governor's Camp Road, 9.32	210	210	25	25	270	210
North Entrance to Park, 12.72	210	260	25	35	290	260

Source: Caltrans 2005

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Cause a substantial increase in traffic, in relation to existing traffic and the capacity of the street system (i.e., a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exceed, individually or cumulatively, the level of service standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Cause a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Contain a design feature (e.g., sharp curves or a dangerous intersection) or incompatible uses (e.g., farm equipment) that would substantially increase hazards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a,b) The project does not involve a transportation component and is not expected to increase visitation to the Park in any way. Project construction will involve some vehicles (equipment, contractor transportation) but the level will be nominal. No impact.
- c) The project will not affect air traffic patterns. No impact.
- d) There is no transportation component to the project, and no part of the project will pose transportation safety risks. No impact.
- e) The project will not block any roads and will not impede emergency access. No impact.
- f) The project will neither decrease parking capacity nor increase Park attendance. No impact.
- g) There is no transportation component to the project and the project does not conflict with any alternative transportation programs. No impact.

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XVI. UTILITIES AND SERVICE SYSTEMS.

ENVIRONMENTAL SETTING

Many utilities and much infrastructure at Big Basin Redwoods SP are antiquated and require frequent maintenance. Water collection and treatment for Park facilities is served by an on-site system. Water is collected at Sempervirens Reservoir, which holds about 78 acre-feet and was created in 1952 by damming Sempervirens Creek, and piped to the water treatment plant located 1,000 ft. downstream. The yearly withdrawal is approximately 34 acre-feet. From the treatment plant the water is then gravity-fed and pumped to water storage tanks where it is distributed to various Park facilities. The system has historically been adequate to meet typical demand, even during drought conditions.

The wastewater collection system and treatment plant is an on-site system that was originally constructed in 1936 and has recently undergone rehabilitation. Wastewater is collected, treated, and released into Waddell Creek.

Pacific Gas and Electric Company provides electricity to the Park through a system of overhead utility lines. Propane tanks provide gas to all facilities requiring heat or heated water. Pacific Bell provides telephone service within the Park through overhead lines. (DPR 2006b)

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Exceed wastewater treatment restrictions or standards of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Would the construction of these facilities cause significant environmental effects?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Would the construction of these facilities cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination, by the wastewater treatment provider that serves or may serve the project, that it has adequate capacity to service the project's anticipated demand, in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations as they relate to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) Project involves rehabilitation of existing water treatment facilities and construction of additional fire suppression facilities. The project will not cause wastewater treatment restrictions or standards to be exceeded and will not contribute to an increased generation of wastewater. No impact.
- b) Project involves rehabilitation of existing water treatment facilities and construction of additional fire suppression facilities. Implementation of all mitigation measures and project constraints incorporated into this document will reduce impacts to less than significant.
- c) No storm water facilities will need to be constructed or expanded. No impact.
- d) Existing water supplies within the Park are sufficient to serve the project. No impact.
- e) Project involves rehabilitation of existing water treatment facilities and construction of additional fire suppression facilities. The project will not contribute to an increased generation of wastewater. No impact.
- f,g) There is no solid waste component to the project. No impact.

CHAPTER 4

MANDATORY FINDINGS OF SIGNIFICANCE

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have the potential to eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means the incremental effects of a project are considerable when viewed in connection with the effects of past projects, other current projects, and probably future projects?)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have environmental effects that will cause substantial adverse effects on humans, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

- a) The proposed project was evaluated for potential significant adverse impacts to the natural environment and its animals and plant communities. It has been determined that the proposed project has the potential to temporarily degrade the quality of the environment by a substantial adverse effect on species identified as a sensitive, candidate, or special status species (marbled murrelet, nesting raptors, nesting migratory bird species, coast horned lizard, Santa Cruz kangaroo rat, California red-legged frog, Santa Cruz Mountains beardtongue) or have a substantial adverse effect on a sensitive natural plant community (redwood and Douglas-fir series). However, full implementation of all mitigation measures, conditions, and constraints incorporated into this project would avoid or reduce these potential impacts to a less than significant level.
- b) The proposed project was evaluated for potential significant adverse impacts to cultural resources. It has been determined that the work proposed in this project would not have the potential to cause a significant adverse impact to archaeological or historic resources provided implementation of all conditions and constraints incorporated into this project.
- c) DPR often has other smaller maintenance programs and rehabilitation projects planned for a park unit. However, no additional work is planned for the project site in the foreseeable future; only general maintenance work would occur once this project is

complete. Impacts from these projects, along with other environmental issues addressed in this evaluation, would not overlap in such a way as to result in cumulative impacts that are greater than the sum of the parts. Full implementation of all mitigation measures, conditions, and constraints incorporated into this project would reduce all impacts to a less than significant level.

- d) Most project-related environmental effects have been determined to pose a less than significant impact on humans. However, possible impacts from exposure to risks related to earthquakes and unstable soils (Geology and Soils) have the potential to result in significant adverse effects on humans. These potentially significant adverse impacts would be reduced to a less than significant level when all mitigation measures, conditions, and constraints incorporated into this project are fully implemented.

CHAPTER 5

SUMMARY OF PROJECT CONDITIONS AND MITIGATION MEASURES

The following mitigation measures and project conditions would be implemented by DPR as part of the Big Basin Redwoods State Park Water System Improvements Project.

PROJECT CONDITION AIR-1

- All active construction areas will be watered at least twice daily during dry, dusty conditions.
- All trucks hauling soil, sand, or other loose materials on public roads will be covered or required to maintain at least two feet of freeboard.
- All equipment engines will be maintained in good condition, in proper tune (according to manufacturer's specifications), and in compliance with all State and federal requirements.
- Excavation and grading activities will be suspended when sustained winds exceed 25 miles mph, instantaneous gusts exceed 35 mph, or dust from construction might obscure driver visibility on public roads.
- Earth or other material that has been transported onto paved streets by trucks, construction equipment, erosion, or other project-related activity will be promptly removed.

MITIGATION MEASURE BIO-1: MARBLED MURRELET

- No project construction-related activities shall occur during the breeding season (March 24 through September 15) in sites located within ¼ mile of potential nesting trees, to avoid direct or indirect (noise) take of marbled murrelets, unless otherwise negotiated with the California Department of Fish and Game and U. S. Fish and Wildlife Service.
- All construction related activities shall not begin until 2 hours after sunrise and shall cease 2 hours before sunset.
- No trees greater than 12 inches diameter at breast height (dbh) shall be removed as a result of this project.
- All tree removal work will occur between September 1 and February 1 to protect nesting birds, unless otherwise negotiated with the California Department of Fish and Game and the U. S. Fish and Wildlife Service.
- Construction personnel will be trained by a DPR-qualified biologist in the life history of the marbled murrelet and its habitat.

MITIGATION MEASURE BIO-2: NESTING RAPTORS

- If construction-related activities are scheduled to begin February 1 through August 31 (nesting season), a focused survey for raptor nests will be conducted by a DPR-qualified biologist during the nesting season to identify active nests within 500 feet of the project area. The survey will be conducted within 30 days prior to the beginning of construction.
- If nesting raptors are found, no construction will occur within a 500-foot radius of the nest tree during the active nesting season of February 1 through August 31, or until the young have fledged (as determined by a DPR-qualified biologist), unless otherwise negotiated with the California Department of Fish and Game.

- All tree removal work will occur between September 1 and February 1 to protect nesting raptors, unless otherwise negotiated with the California Department of Fish and Game and the U. S. Fish and Wildlife Service.

MITIGATION MEASURE BIO-3: MIGRATORY BIRD SPECIES

- If construction-related activities are scheduled to begin during the nesting season of March 1 to September 15, a DPR-qualified biologist will conduct a survey for nesting bird species within 14 days prior to commencement of construction at each site to ensure that no nesting birds will be impacted by the project. The survey area will include the project site and at least a 100-foot zone around it.
- If active nests are located, all construction disturbance activities within a 100-foot radius (or as negotiated with DFG on a case-by-case basis, based upon species and location of nest) of the nest tree shall be postponed until the nest is vacated and juveniles have fledged and when there is no evidence of a second attempt at nesting.
- All tree removal work will occur between September 1 and February 1 to protect nesting birds, unless otherwise negotiated with the California Department of Fish and Game and the U. S. Fish and Wildlife Service.

MITIGATION MEASURE BIO-4: COAST HORNED LIZARD

- A morning site inspection for coast horned lizards will be conducted by a DPR-qualified biologist prior to the start of construction each day that construction is scheduled in coast horned lizard habitat.
- If a coast horned lizard is found within the project area, construction in that location will cease until the animal has moved out of the construction area of its own accord, or is removed from the site by a qualified biologist.
- Construction activity within coast horned lizard habitat will also be spot checked during the work day by a DPR-qualified biologist.
- Project excavations will be covered at night with plastic, or another approved method that prevents animals from being trapped.
- Construction personnel will be instructed by a DPR-qualified biologist in the life history of the coast horned lizard and its habitat.

MITIGATION MEASURE BIO-5: SANTA CRUZ KANGAROO RAT

- A morning site inspection for the Santa Cruz kangaroo rat will be conducted by a DPR-qualified biologist prior to the start of construction each day that construction is scheduled in Santa Cruz kangaroo rat habitat.
- If a Santa Cruz kangaroo rat is found within the project area, construction in that location will cease until the animal has moved out of the construction area of its own accord, unless otherwise negotiated with the California Department of Fish and Game.
- Construction activity within Santa Cruz kangaroo rat habitat will also be spot checked during the workday by a DPR-qualified biologist.
- Project excavations will be covered at night with plastic, or another approved method that prevents animals from being trapped.
- Construction personnel will be instructed by a DPR-qualified biologist in the life history of the Santa Cruz kangaroo rat and its habitat.

MITIGATION MEASURE BIO-6: CALIFORNIA RED-LEGGED FROG

- Immediately prior to the start of work each morning, a USFWS-approved biologist or DPR-qualified biologist will conduct a visual inspection of the construction zone, prior to the start of work.
- Construction activity within the project site will also be spot checked during the workday by a USFWS- approved biologist or a DPR-qualified biologist.
- If a California red-legged frog is found, start of work at that project site would be delayed until the species moves out of the site on its own accord, or is temporarily relocated by a USFWS-approved biologist.
- Project excavations will be covered at night with plastic, or another approved method that prevents animals from being trapped.
- Construction personnel will be instructed by a qualified biologist in the life history of the California red-legged frog and its habitat, and instruction in the appropriate protocol to follow in the event that a California red-legged frog is found onsite.

MITIGATION MEASURE BIO-7: SENSITIVE NATURAL COMMUNITIES

- Within the root health zone (5 times dbh) of any native tree with a dbh of 24 inches or greater, no roots with a diameter of one inch or greater will be cut.

PROJECT CONDITION CULT-1: HISTORIC RESOURCES

- Prior to the start of construction the road will be flagged by the DPR archaeologist assigned to the project to insure the resource is identifiable to construction workers. The operation of heavy equipment will not be allowed on the grade and it will not be used as a staging area for construction supplies.
- During construction activities, a DPR-qualified archaeologist will monitor all ground disturbing activities in the Upper Residence including the vicinity of the grade.

PROJECT CONDITION CULT-2: HISTORIC RESOURCES

- Measures will be taken to properly record the Panoramic Tank prior to abandonment, including the production of as-built drawings.
- Future use in another capacity (water storage for fire emergencies) will be facilitated by the district. This would aid in the process of slowing down the decay.

PROJECT CONDITION CULT-3: ARCHAEOLOGICAL RESOURCES

- All ground disruption including but not limited to trenching, excavation, and the use of heavy equipment will be monitored by a DPR-qualified archaeologist in the Upper and Lower Residence areas, and the Panoramic Tank area.
- No ground disturbing activities including the operation of heavy equipment will be allowed north of the cement retaining wall behind the structures located on the north side of the road in the Upper Residence area.
- The DPR archaeologist assigned to the project will be notified a minimum of three weeks prior to the start of ground disturbing activities (in culturally sensitive areas that require archaeological monitoring) to schedule and conduct monitoring.

PROJECT CONDITION CULT-4: ARCHAEOLOGICAL RESOURCES

- Road preparation for transport of the new tank to the installation site adjacent to the Panoramic Tank will not include widening or leveling the historic road grade.

PROJECT CONDITION CULT-5: ARCHAEOLOGICAL RESOURCES

- All staging areas will be pre-approved by the DPR cultural resources specialist assigned to the project.

PROJECT CONDITION CULT-6: ARCHAEOLOGICAL RESOURCES

- In the event that previously unknown cultural resources (including but not limited to dark soil containing shellfish, bone, flakes stone, ground stone, or deposits of historic trash) are encountered during project construction by anyone, the state representative will put work on hold at that specific location and contractors will be redirected to other tasks. A DPR-qualified archaeologist will record and evaluate the find and work with the state representative to implement avoidance, preservation, and recovery measures as appropriate prior to any work resuming at that specific location.
- If significant cultural resources are found during construction activities, a DPR-qualified historian, archaeologist and/or Native American representative (if appropriate) will monitor all subsurface work including trenching, grading, and excavation in the area of the find.

PROJECT CONDITION CULT-7: ARCHAEOLOGICAL RESOURCES

- Any design changes or expansion of the project that will include additional ground disturbing activities will be approved by the DPR cultural resource specialist/s assigned to the project.
- Necessary changes in design will be reported in a timely manner to the cultural resource specialist/s so appropriate conditions/mitigations can be implemented prior to the start of construction.

PROJECT CONDITION CULT-8: ARCHAEOLOGICAL RESOURCES

- In the event that human remains are discovered, work will cease immediately in the area of the find and the project manager/site supervisor will notify the appropriate DPR personnel. Any human remains and/or funerary objects will be left in place or returned to the point of discovery and covered with soil. The DPR District Superintendent (or authorized representative) will notify the County Coroner, in accordance with 7050.5 of the California Health and Safety Code, and the Native American Heritage Commission (or Tribal Representative). If a Native American monitor is on-site at the time of the discovery, the monitor will be responsible for notifying the appropriate Native American authorities.
- If the coroner or tribal representative determines the remains represent Native American interment, the Native American Heritage Commission in Sacramento and/or tribe would be consulted to identify the most likely descendants and appropriate disposition of the remains. Work would not resume in the area of the find until proper disposition is complete (PRC 5097.98). No human remains or funerary objects will be cleaned, photographed, analyzed, or removed from the site prior to determination.
- If it is determined the find indicates a sacred or religious site; the site will be avoided to the maximum extent practicable. Formal consultation with the State Historic Preservation Officer and review by the Native American Heritage Commission/Tribal Cultural representatives will also occur as necessary to define mitigation measures or future restrictions.

MITIGATION MEASURE GEO-1: SEISMIC BUILDING REQUIREMENTS

- The proposed water tank must conform to earthquake design requirements. Tank and foundation design will follow the applicable regulations and design practices of the American Water Works Association Design Standards.
- Any new equipment installed as part of the water system treatment upgrades would be secured to the walls and/or floor in the existing water treatment building to prevent damage in the event of a large earthquake.
- State Park staff would inspect the water supply system for damage as soon as feasible after a large earthquake.

PROJECT CONDITION GEO-1: EROSION CONTROL

- Best Management Practices (BMPs) will be used in all areas to control soil and surface water runoff during excavation, grading, and trenching. Whenever possible grading and excavation activities will not be planned during the rainy season (October 15 to April 15), but if storms are anticipated during construction or if construction must occur during the wet season, “winterizing” will occur, including the covering (tarping) of any stockpiled soils and the use of temporary erosion control methods to protect disturbed soil. Temporary erosion control measures (BMPs) will be used during all soil disturbing activities and until all disturbed soil has been stabilized (re-compacted, re-vegetated, etc.) These BMPs will include, but not be limited to, the use of silt fences, straw bales, or straw or rice coir rolls, to prevent soil loss and siltation into nearby water bodies.
- Permanent BMPs for erosion control will consist of properly compacting disturbed areas and re-vegetation of appropriate disturbed soil areas with native species using seed collected locally. Final design plans will include BMP measures to be incorporated into the project.

PROJECT CONDITION HAZMAT-1: POLLUTION PREVENTION

- All equipment will be inspected by the contractor for leaks immediately prior to the start of construction, and regularly inspected thereafter until equipment is removed from Park premises.
- The contractor(s) will prepare an emergency Water Pollution Control Plan prior to the start of construction and maintain a spill kit on-site throughout the life of the project. This plan will include a map that delineates construction staging areas, where refueling, lubrication, and maintenance of equipment may occur. Areas designated for refueling, lubrication, and maintenance of equipment shall be at least 50 feet from any creeks. In the event of any spill or release of any chemical in any physical form at the project site or within the boundaries of Big Basin Redwoods State Park during construction, the contractor would immediately notify the appropriate DPR staff (e.g., project manager, supervisor, or State Representative).
- Equipment will be cleaned and repaired (other than emergency repairs) outside the Park boundaries. All contaminated water, sludge, spill residue, or other hazardous compounds will be disposed of outside Park boundaries, at a lawfully permitted or authorized destination.
- Dust generated by any surface preparation work will be contained indoors. Workers will use appropriate personal protection gear compliant with Cal/OSHA standards.

PROJECT CONDITION HAZMAT-2

A Worker Safety Plan will be developed and reviewed by all project staff prior to the start of any work. Job site characteristics to reduce the potential for fire would be included such as, but not limited to, those discussed below:

- Spark arrestors or turbo-charging (which eliminates sparks in exhaust) and fire extinguishers would be required for all heavy equipment.
- Construction crews would be required to park vehicles away from flammable material, such as dry grass and brush. At the end of each workday, heavy equipment would be parked over mineral soil, asphalt, or concrete to reduce the chance of fire.
- The Worker Safety Plan will provide guidelines for the proper use, storage, and disposal of any flammable materials used during the project work.

PROJECT CONDITION HYDRO-1: WATER QUALITY

- Implementation of Project Condition **GEO-1** will provide Best Management Practices (BMPs) to control erosion and runoff during project construction and post-construction into nearby creeks.
- Implementation of Project Condition **HAZMAT-1** will reduce impacts to water quality from possible pollutants (fuels and other vehicle fluids released from vehicles and heavy equipment during construction).

PROJECT CONDITION NOISE-1

- Construction activities will generally be limited to the hours between 7 a.m. and 6 p.m., daily.
- Internal combustion engines used for any purpose at the job site will be equipped with an exhaust muffler of a type recommended by the manufacturer. Equipment and trucks used for construction will utilize the best available noise control techniques (e.g., engine enclosures, acoustically attenuating shields or shrouds, intake silencers, ducts, etc.) whenever feasible and necessary.
- Stationary noise sources and staging areas will be located as far from Park visitors as possible. If they must be located near visitors, stationary noise sources will be muffled to the extent feasible and/or, where practicable, located within temporary noise reducing enclosures.

CHAPTER 6

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APPENDIX A
MAPS

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APPENDIX B
SENSITIVE SPECIES

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APPENDIX C
ACRONYMS

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